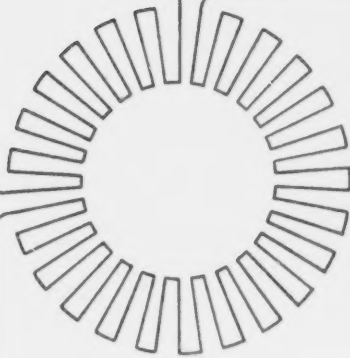


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Center for Human Resource Research

Unemployment Insurance and
the Duration of Unemployment

A Note on Ehrenberg and Oaxaca

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There is by no means a precise estimate of the influence of Unemployment Insurance (U.I.) on the duration of unemployment even though a variety of studies of this issue have been completed in the last decade. Hamermesh summarizes a dozen studies and concludes that his best estimate of the influence of U.I. is that the duration of an individual's unemployment will be prolonged by about one-half a week in response to a 10 percent increase in the ratio of U.I. weekly benefits to the individual's average weekly earnings prior to unemployment. He is careful to state that "this is not an exact figure, but it does appear that there is some effect, certainly above zero and probably less than one week. A more precise estimate awaits a study that embodies the best features of all those (reviewed)."¹

One of the more interesting studies, by Ehrenberg and Oaxaca (E+O), was reported earlier in this journal.² The study utilized the four age-sex specific cohorts of the National Longitudinal Surveys (NLS) to estimate a linear model with duration of unemployment over a one-year period as the dependent variable. That study, using ordinary least squares estimation, found that the impact of increasing the wage replacement ratio 10 percentage points (from 0.4 to 0.5) ranged from 0.2 weeks added duration for young men to 1.5 weeks for older men.

Since the Ehrenberg and Oaxaca study was completed, new data have become available for the NLS which allow us to test the sensitivity of the earlier results. In this note we report what occurs when the original E+O specifications are changed. We find that when the model has been extended to reflect

¹Hamermesh (1977), p. 37.

²Ehrenberg and Oaxaca (1976).

differences between those eligible and those not eligible to receive U.I., the strong relationship between the wage replacement ratio and duration of unemployment disappears.

Making distinctions about U.I. eligibility is important. Given the broad coverage of the U.I. program at present, the question important for policy purposes is not whether those eligible differ significantly from those ineligible in terms of the duration of unemployment they experience. Rather, the question is whether those eligible for U.I. behave in a different manner when they receive larger and larger weekly U.I. benefits.

Ehrenberg and Oaxaca include in their estimates both the effects of eligibility on duration and the effects of varying weekly amounts of U.I. on duration, since an unknown number of respondents who did not receive any U.I. benefits are included in the analysis. For these respondents, the wage replacement ratio is zero.

Zero values for the replacement ratio can lead to biased results of the effect of U.I. on the duration of unemployment in two ways. 1) Some respondents may be eligible for U.I. but not apply. Those who expect a short duration of unemployment will be less likely to apply for U.I. even though eligible. Thus short duration of unemployment is associated with the zero replacement ratio which was assigned to the respondent because U.I. was never received. The correlation between a zero replacement ratio and short duration makes the relationship between positive replacement ratios and longer duration appear to be stronger, thus overstating the effect of U.I. on duration. 2) Respondents who report zero receipt of U.I. may have been ineligible for U.I. One of the major kinds of disqualification is voluntary separation from a job. Voluntary quits could be associated with short

duration of unemployment as follows: a respondent may expect short duration since good job prospects in the local labor market were the inducement to quit. If job prospects were bad, why quit? If we control well for local labor market conditions, voluntary quits would not necessarily bias the estimates. If local labor market controls fail (omitted variables), a correlation is established between voluntary quits with their corresponding zero-valued replacement ratios and short duration. Again, the effect of positive replacement ratios on duration is overstated.

In the present analysis, each of the potential biases indicated above is tested using data from the NLS files for young and older men in 1970 and 1971. The E+O study used earlier information for men and women from 1966 to 1969. Complete work histories exist for the more recent years, yielding important advantages. Unemployment can be measured by spell; reason for a job separation can be determined; and since the work histories extend over a two-year period, long spells of unemployment which occur near the interview date are not all excluded from the analysis.

The strategy for testing the sensitivity of the E+O results is three-fold. As a first step, for each male respondent the first spell of unemployment occurring in the two-year work history is identified. Using that spell of unemployment we calculate across all respondents a percentage distribution for the length of the spell identified. Separate distributions are calculated for recipients and nonrecipients of U.I. Comparing the separate distributions provides a first indication of whether including both recipients and nonrecipients in an estimating model may provide unreliable estimates of the relationship between U.I. and duration.

As a second step, duration equations similar to those used by Ehrenberg and Oaxaca are estimated for male job changers experiencing a spell of unemployment in 1970 or 1971, and results are compared with the earlier reported E+O analysis. Finally, the E+O equations are tested for sensitivity to changes in specification. Those ineligible for U.I. are identified and excluded from the sample. Eligible respondents are used to reestimate the E+O equations, making adjustments in the replacement ratio for those who, though apparently eligible for U.I., did not report receiving benefits. The newly estimated equations are compared with the replication equations to assess the model's sensitivity.

Results

We do find a difference in the percentage distributions for the length of a spell of unemployment. Table 1 shows the comparative percentage distributions for those reporting receipt of U.I. and those not reporting U.I.

INSERT TABLE 1 ABOUT HERE

The distributions differ for respondents with duration longer than 26 weeks reflecting the influence of state laws regarding maximum duration. But more importantly, the distributions also diverge for respondents whose spells of unemployment are quite short in duration. The distributions for nonrecipients of U.I. contain proportionately more respondents with quite short durations of unemployment. The divergence in distributions may mean that those ineligible for U.I. behave differently than those eligible, but it may also mean that reported receipt of U.I. is not a good proxy for eligibility. If the latter is true, then some respondents with short duration of unemployment are actually

eligible for U.I. and should be included in the U.I. distributions instead of the non-U.I. percentage distributions shown in Table 1.

Results from the percentage distributions support the strategy for testing the sensitivity of the E+O models, both for effects introduced by ineligible respondents and for effects of respondents who, although eligible, do not report receipt of U.I.

For predicting U.I. eligibility we construct the following model:

$$E = \alpha_0 + \alpha_1 Q + \alpha_2 U + \alpha_3 I + \alpha_4 J + \alpha_5 W + \alpha_6 P \quad (1)$$

where

- E = a dummy variable coded one when the respondent reported receipt of U.I. in the same year that a spell of unemployment occurred.
- Q = a dummy variable coded one if the respondent quit voluntarily from the job held immediately prior to a spell of unemployment.
- U = a dummy variable coded one if the job prior to a spell of unemployment was not covered by U.I. -- salespersons in real estate and insurance, private household workers, and farmworkers.
- I = a dummy variable coded 1 if wage credits in the calendar year prior to a spell of unemployment were 0-\$1500.
- J = a dummy variable coded 1 if wage credits in the calendar year prior to a spell of unemployment were \$1501-\$2000.
- W = a dummy variable coded 1 if weeks of work in the year prior to a spell of unemployment were less than 28.
- P = a continuous variable measuring the number of previous survey years in which U.I. was reported divided by the number of surveys prior to 1970 when the respondent was interviewed.

Some experimentation was done with various categorical variables before the variables that are shown were selected. Due to very low significance levels, J was ultimately dropped from the estimating equations for older men and W was dropped for the young men. Information for determining eligibility was taken from the first full year of data preceding the year in which a spell of unemployment was identified. Results for the estimation of E are shown in Table 2.

INSERT TABLE 2 ABOUT HERE

For both young and older men, predicted values ($\hat{E}$) were compared with the set of components used in the prediction. For both age cohorts at predicted values less than 0.3 those ineligible for U.I. were clearly excluded. The equation appeared to distinguish most clearly the eligibles from ineligibles for older men when a cutoff of 0.3 was used. Out of 147 older men who experienced some unemployment in 1970 or 1971, 44 were defined to be ineligible for U.I., using this criterion (30 percent of our sample). Four of the 44 had reported receipt of U.I. even though our criteria would indicate that they were ineligible. This error in assignment amounts to 7 percent of the total U.I. recipients. If the cutoff for $\hat{E}$ were raised from 0.3 to 0.4, 21 respondents who reported receipt of U.I. would be defined as ineligibles, 35 percent of the U.I. recipients contained in our sample. Clearly the higher cutoff point would err by defining too many respondents as ineligible for U.I.

For young men, 165 of the 348 respondents experiencing unemployment in 1970 and 1971 were defined as ineligible, again using a 0.3 cut point for $\hat{E}$ (47 percent of the sample). Of those defined as ineligible under this rule 21 actually reported receipt of U.I., 18 percent of the young male U.I. recipients. A higher cut-off at 0.4 would result in 27 percent of the U.I. recipients misclassified as ineligible to receive benefits. On the basis of these results we define any respondent with a value for $\hat{E}$ of less than 0.3 as ineligible for receipt of U.I. Those with values greater than or equal to 0.3 are defined as eligible.

The next stage of the analysis is to replicate the E+O results on the new data from 1970 and 1971. We then test the model's sensitivity when re-estimated, taking into account the problems caused by combining both eligible and ineligible respondents in the group to be used in making the estimates. The replication utilizes an equation quite similar to the original specification utilized by Ehrenberg and Oaxaca. Some new variables were added to the model, however, and a consistent set of variables was used for both young and older men. In our estimating equation the natural log of the duration of a spell of unemployment is a function of the wage replacement ratio "F" (average weekly U.I./average weekly earnings in the job immediately prior to a spell of unemployment), plus a series of control variables to proxy for the costs and benefits of prolonged search for new employment.

$$\ln(D) = \beta_0 + \beta_1 F + \sum_{j=2}^k \beta_j X_j \quad (2)$$

The control variables used were the following: dichotomous variables were used for race (whites = 1), home ownership, health condition which limits work, year in which the spell of unemployment occurred (occurring in the first year of the two year period = 1), and marital status (married = 1). Continuous variables were the natural log of weekly wages earned prior to a spell of unemployment, highest grade completed in school, level of assets, tenure (in months) on the job held prior to unemployment, local labor market size, local unemployment rate, income from other family members (for young men, wife's income only), number of dependents, and respondent's score on a 44-point version of the Rotter measure of internality/externality. (A respondent with a lower I/E score tends to feel that what happens to him is more due to his own doing than to fate or chance.)

Equations were estimated using ordinary least squares, results of which are shown in Tables 3 and 4. In the tables the estimated coefficients for the wage replacement ratio are compared with Ehrenberg and Oaxaca's earlier results.

INSERT TABLES 3 AND 4 ABOUT HERE

As in the earlier study, the coefficients estimated for the replacement ratio are significantly positive and relatively insensitive to the addition of control variables to the model. The significance of the replacement ratio in the young men's equation is in fact extraordinarily high. When evaluated, the coefficients for young men and for older men alike yield approximately the same impact, an estimate which is midway between the estimates derived by E+0 for each of the two male cohorts. Our estimates show that the impact of an additional 10 percentage point increase in the replacement ratio is a 0.9 week prolongation of unemployment. It is curious that the estimates do not show more of a difference in impact for two groups of men who differ so widely in age.

Further comparison of the replication equations shows a consistently longer duration of unemployment for respondents in larger population centers, shorter duration for those with more dependents, and longer spells for those with more education. Younger men show a significant positive relationship between wages and unemployment, opposite that predicted by search theory. Race is a significant factor for young men but not for older men. Older men, who are more external and who have sources of income other than their own wage and salary income, have longer spells of unemployment.

The estimated results for the replacement ratio are both reasonable and highly significant, but are they robust? We have argued that respondents who have zero values for the replacement ratio may bias our results. Thus the first disturbing finding from the replication equations is the very large number of respondents reporting no receipt of U.I. (and therefore assigned a zero value for the replacement ratio). In our sample of male job changers experiencing a spell of unemployment, 67 percent of the young men and 58 percent of the older men did not report receipt of U.I. in the same year that they experienced a spell of unemployment. We assume that the same was true of the earlier E+0 sample since the same criteria were used for sample selection.³

We found earlier, however, that a large number of our respondents had insufficient wage credits to gain eligibility for U.I. or were ineligible for other reasons. Of the young men, 47 percent were defined as ineligible by our criteria, and for the older men, 29 percent were ineligible. Excluding these ineligibles still leaves significant numbers of young men reporting no U.I., and this fact must be addressed in our sensitivity tests.

There are several possible explanations for the existence of respondents who do not report U.I. even though they are defined as eligible to receive it. Some respondents eligible for U.I. may not have filed for benefits. Alternatively, some respondents may have received U.I. but did not report it

³The criteria excluded new entrants to the labor force since the sample was restricted to those employed both at the beginning and at the end of the two year period. Thus, the large number of nonrecipients of U.I. should not be due to respondents entering the labor force with no wage credits.

to NLS interviewers. In either case, the appropriate variable for measuring the impact of U.I. on their behavior is not the zero-valued replacement ratio they have been assigned but rather some measure of the amount of U.I. they could have received (for eligible nonfilers) or actually did receive but did not report. An instrumental variable is needed to approximate this unobserved variable.

Construction of an instrumental variable in this case is quite difficult, given the complexity introduced by separate state jurisdictions and formulas for calculating U.I. benefits. Instead we utilize the less complicated though less elegant procedure of substituting mean values of the replacement ratio for respondents who were previously assigned zero values and then re-estimate the equations reported in Tables 3 and 4. Using this procedure, variation in the values of the replacement ratio for respondents who do report receipt of U.I. should capture the effect of varying amounts of U.I. on duration.⁴

The results of this test for sensitivity are reported in Columns 1 and 2 of Table 5. They are not encouraging if our objective is to isolate a firm estimate of the influence of U.I. on duration. In fact, we cannot establish

⁴A difficult question is what value should be used to approximate the replacement ratio for respondents who have unobserved values for the ratio. The mean value of the ratio appears to be a neutral choice if respondents who do not have observed values for U.I. possess the same characteristics as respondents who do have observed values for U.I. We have argued earlier, however, that the "unobservables" do differ from the "observables." Furthermore, these differences could be correlated with the wages that respondents receive. (For example, voluntary quits could have higher wages.) Thus one could argue that the most appropriate replacement ratio for "unobservables" is one where we divide the mean U.I. benefit by each unobservable's own wage (the wage is reported). The result is largely the same as the simpler procedure we utilize, however, since U.I. benefits themselves are calculated as a percentage of prior earnings. Only for respondents whose wages qualify them for the maximum benefit amount would our procedure differ substantially from the latter one.

that U.I. has any significant impact on duration. Both t-values and the estimated coefficients for the replacement ratio are reduced drastically.

In the newly estimated models, local labor market and time variables assume a more important role in predicting duration than does the replacement ratio. Size of the local labor market and the local unemployment rate are positively associated with duration even though t-values are quite low for the latter variable. Assuming more significance in equations of Table 5 is

INSERT TABLE 5 ABOUT HERE

a variable indicating when a spell of unemployment occurred. Holding constant the rising local unemployment rates in 1970 and 1971, a spell which was initiated in 1970 should on average be longer than one initiated in 1971, since our sample includes only those employed again at the 1971 interview. This result emerges in these estimates even though it was absent in the replication equations. Other significant determinants of duration for the older men were the amount of income sources other than own wage and salary income and the number of dependents. Though not quite significant, the log of prior weekly earnings was negative for older men as search theory would predict. Variables measuring assets and exogenous income had "wrong" signs in the young men's equations, undoubtedly due to the measures used as proxies.⁵

The method we have used for adjusting replacement ratios places considerable weight on 1) the variation in replacement ratios for respondents who report receipt of U.I., and 2) the method for predicting eligibility. As

⁵ A measure of assets is available only in 1966 and 1971 for young men. We used 1971 as the more current measure but for many, the measure follows rather than precedes a spell of unemployment, introducing the potential for reverse causality in the equation. The measure for exogenous income in the young men's sample was wife's wage and salary income, introducing more collinearity between this variable and marital status than was the case for older men where additional sources of income could be included.

for variation in the replacement ratios, it is not small even when zero values are omitted. For young men values ranged from 2 to 230 percent and for older men from 16 to 95 percent. In each age group, two-thirds of the replacement ratios fell outside the 40-60 percent range so there was likewise considerable dispersion of the ratios around mean values.⁶

The method for predicting eligibility is more open to challenge. Of those defined as eligible, 50 percent of the young men and 46 percent of the older men did not report receipt of U.I. It is doubtful that all of these respondents either did not report receipt of U.I. or were eligible nonfilers. More probably, some factors in determining eligibility have not been adequately measured and we have overestimated the group of U.I. recipients defined as eligible. To gather indirect evidence of this potential problem, we divided "eligible" young men into two groups--those reporting receipt of U.I. and those not reporting U.I. We then compared the two groups on several different dimensions: race, size of local labor market, Rotter score, student status, and wages, weekly earnings, occupation, industry and the prior year's weeks worked on the job prior to the spell of unemployment experienced. Results are shown in Table 6. Eligible nonrecipients of U.I. tend to be lower paid, are more likely to be black or students, and are employed disproportionately in trade or service industries.

INSERT TABLE 6 ABOUT HERE

The larger proportion of students among those whom we have classified as eligible but who reported no U.I. suggests that some respondents may be students ineligible because they were unavailable for full-time work. Nevertheless,

⁶Mean replacement ratios were 55 percent for the young men and 41 percent for the older men.

a significant number of students do report U.I. so including all students in the "ineligible" group could not be justified.

A second possibility is that some of the eligible nonrecipients are self-employed or working in small retail or service industries not covered by U.I. We were able to establish that no respondents were self-employed; but no data were available on the size of the establishments in which the respondents worked.

Analysis of eligible nonrecipients did not yield additional possibilities for improving the prediction of U.I. eligibility. Thus as a final test of sensitivity, we have made an extreme assumption regarding eligibility. We assume that only those respondents who report U.I. are eligible. We re-estimate the E+O equations only for those reporting receipt of U.I. Given the relatively small sample size, this test allows us to determine whether the insignificance of the replacement ratio in the previous equations was simply due to the small number of respondents who actually reported U.I. With the young male sample a stepwise estimating procedure was used to eliminate the least significant variables. After entering the replacement ratio first, the only variables reported were those which retained a t-value greater than 1. Results are shown in column 3 of Table 5. In this final test, the replacement ratio loses its significance altogether, even though other variables such as health and number of dependents are significant.

Conclusions

What appear as quite strong effects of U.I. on the duration of unemployment do not persist once adjustments are made for differences in eligibility

of respondents. We conclude that for male job changers, the amount of previous wages replaced by U.I. has little effect on duration. Local labor market conditions and personal considerations such as additional sources of income and number of dependents appear to be more important than U.I.

The large disparity in results before and after accounting for differences in eligibility demonstrates the need for caution in interpreting any results of the influence of U.I. on unemployment. The disparity also shows how a considerable range of effects can be estimated where samples of observations include varying numbers of respondents who are either ineligible for U.I. or eligible for U.I. and do not report it. We need to know considerably more about the number and characteristics of individuals who though eligible for U.I. do not file. Furthermore, if survey data are to be used in estimating the impact of U.I., better information is needed to predict eligibility. Once eligibility has been controlled, the important policy question can be answered--namely, how responsive is individual behavior to changes in the liberality of U.I. benefits.

Table 1 Percentage Distributions of Unemployment Duration by Receipt or Nonreceipt of U.I.

Duration in weeks	Young men		Older men	
	Nonrecipients	Recipients	Nonrecipients	Recipients
1	17	2	15	8
2	22	4	10	8
3	10	4	5	3
4	10	11	10	3
5	8	11	6	2
6	3	4	3	3
7-12	14	24	20	16
13-18	7	11	9	19
19-24	3	12	7	10
25-30	4	4	7	13
31+	2	13	8	15
Total percent	100	100	100	100
Number of respondents	234	114	87	61

Table 2 Equations Estimating U.I. Eligibility

	Older men	Younger men
Constant	.349	.474
Q - Voluntary quits	-.195 (2.35)	-.212 (4.39)
U - Uncovered workers	-.161 (1.07)	-.134 (1.32)
I - Wage credits \$0-1500	-.117 (5.56)	-.310 (5.63)
J - Wage credits \$1501-2000	-	-.161 (2.25)
W - Weeks worked < 28	-.238 (2.23)	-
P - Percent of previous survey years report U.I.	.013 (6.97)	.008 (3.98)
Standard error of Y.X	0.41	0.42
F	13.76	17.11
Adj R ²	0.30	0.18

Table 3 Replication of Ehrenberg and Oaxaca Young Men

	E+O	Replication	
	Coefficient (t-value)	Coefficient (t-value)	Mean Value (Standard Dev.)
Constant	1.625	-.310	
Rep ratio	.538 (2.1)	1.181 (5.50)	.161 (.29)
Ln wages	.111 (1.1)	.292 (2.13)	5.38 (.45)
Assets (in 1,000s of dollars)	-.022 (0.7)	-.026 (1.36)	.715 (3.33)
Asset dummy	-.045 (0.3)	-	
Tenure	-.036 ^a (0.9)	-.010 ^b (1.25)	5.61 ^b (6.76)
Labor market size (in 1,000s)	.000 (0.0)	.123 (2.36)	639 (105)
Local Unemployment Rate	.060 (1.9)	.014 (0.49)	6.02 (2.09)
Spell in 1968	.065 (0.6)	-	
Spell in 1969	-.029 (0.3)	-	
Spell in 1970		.038 (0.29)	.33 -
Exog. Income (in 100s of dollars)		-.001 (.12)	6.11 (15.79)
Race-white	-.074 (0.8)	-.345 (2.82)	.66 -
Dependents	-	-.120 (2.04)	.66 (1.15)
Married	-.252 (2.1)	.038 (0.24)	.38 -

Table 3 (continued)

	E+0	Replication	
	Coefficient (t-value)	Coefficient (t-value)	Mean value (standard dev.)
Owens home	-	.113 (0.54)	.11 -
Health limitation	-.125 (1.0)	.173 (0.82)	.07 -
Education	-.057 (2.4)	.030 (1.24)	11.67 (2.51)
Knowledge of world of work	.002 (0.3)	-	
Rotter I-E	-	.002 (0.22)	23.46 (5.24)
Mean of the dep. variable, Ln spell of unemployment	-	-	1.68
Sample size	464	348	348
R^2	.05	-	
$\bar{R}^2$	-	.14	
Stand. error of Y.X	-	1.00	
F ratio	-	4.74	

^aMeasured in years.

^bMeasured in months.

Table 4 Replication of Ehrenberg and Oaxaca Older Men

	E+0	Replication	
	Coefficient (t-value)	Coefficient (t-value)	Mean value (Standard dev.)
Constant	1.078	1.477	
Rep ratio	1.653 (2.6)	.870 (2.33)	.181 (.28)
Ln wages	.054 (0.4)	-.087 (0.34)	5.65 (.50)
Assets	.007 (0.8)	-.007 (0.99)	10.67 (16.24)
Asset dummy	-.616 (1.6)	-	
Tenure (in months)	-	.001 (0.76)	60.13 (96.31)
Years to retirement	.013 (0.5)	-	
Labor market size (in 1,000s)	-.250 (2.0)	.244 (2.28)	615 (102)
Local unemployment rate	.076 (1.0)	.018 (0.34)	5.28 (1.88)
Spell in 1970	-	.140 (0.64)	.66 -
Exog. Income	.706 ^a (1.6)	.018 ^b (1.32)	2.44 ^b (8.17)
Race-white	.099 (0.3)	-.049 (0.20)	.68 -
Dependents	-.013 (0.2)	-.081 (1.43)	1.47 -
Married	.097 (0.2)	-.253 (0.89)	.81 -
Owens home	.259 (0.8)	-.086 (0.38)	.61 -
Health limitation	-	.090 (0.40)	.30 -

Table 4 (continued)

	E+0	Replication	
	Coefficient (t-value)	Coefficient (t-value)	Mean value (Standard dev.)
Education	-	.038 (1.16)	8.78 (3.88)
Rotter I-E	-	.026 (1.39)	24.34 (5.77)
Mean of the dep. variable, Ln spell of unemployment	-	-	2.07
Sample size	39	148	
R^2	.36	-	
$\bar{R}^2$	-	.09	
Stand. error of Y.X	-	1.16	
F ratio	-	1.97	

^aMeasured in 1,000s of dollars.

^bMeasured in 100s of dollars.

Table 5 Tests for Sensitivity

	Reestimation excluding non-eligibles and replacing zero values with mean replacement ratio		Reestimation on U.I. recipients only
	Young men	Older men	Young men
Constant	.775	4.27	1.370
Rep ratio	-.165 (.41)	.019 (.03)	.138 (0.47)
Ln wages	.095 (.41)	-.528 (1.54)	-
Assets (in 1,000s of dollars)	-.022 (.92)	-.003 (.34)	-
Tenure (in months)	.004 (.28)	-.0004 (.31)	-
Labor market size (in 10,000s)	.200 (2.35)	.340 (2.86)	-
Local ump. rate	.037 (.96)	.007 (1.10)	-
Spell in 1970	.400 (2.25)	.293 (1.08)	-
Exog. income (in 100s of dollars)	-.007 (1.30)	.026 (1.80)	-.001 (1.82)
Race-white	-.217 (1.13)	-.093 (.30)	-
Dependents	-.120 (1.35)	-.166 (2.30)	-.277 (2.60)
Married	.117 (.54)	-.14 (.37)	.327 (1.47)
Owns home	.207 (.76)	-.246 (.84)	-
Health limitation	.311 (1.01)	.068 (.25)	.713 (1.93)

Table 5 (continued)

	Reestimation excluding non-eligibles and replacing zero values with mean replacement ratio		Reestimation on U.I. recipients only
	Young men	Older men	Young men
Education	.041 (1.10)	.054 (1.22)	.039 (1.05)
Rotter I-E	-.006 (.41)	.006 (.29)	.021 (1.37)
Mean of the dep. variable, Ln spell of unemployment	1.864	2.165	
Mean replacement ratio	.518	.428	
Sample size	183	104	114
$\bar{R}^2$	.05	.13	.08
Stand. error of Y.X	1.08	1.14	.87
F ratio	1.58	2.08	2.46

Table 6 Comparative Characteristics, Young Men Defined as Eligible for U.I.

	Eligible nonrecipients	Eligible recipients
Percent nonwhite	41	19
Size of local labor market (in 1,000s)	528	680
Rotter I-E	24	23
% students in year received U.I.	23	11
Weeks worked-year prior to spell	45	46
Wage-job prior to spell	\$2.43	\$3.18
Weekly earnings-job prior to spell	\$91	\$127
One digit occupational distributions		
1 Professional, technical,		
2 managerial	11%	9%
3 Clerical and kindred	12	11
4 Sales	14	18
5 Craftsmen and kindred	1	4
6 Operatives and kindred	38	44
7 Private household	-	-
8 Service workers	8	1
9 Farmers	-	-
10 & 11 Laborers	16	13
One digit industry distribution		
1 Agriculture	2%	1%
2 Mining	1	-
3 Construction	19	25
4 Manufacturing	30	49
5 Transportation	3	1
6 Wholesale/retail trade	20	11
7 Finance, insurance, real estate	1	-
8 Business and repair services	10	8
9 & 10 Personal services, entertainment	2	2
11 Professional and related services	11	2
12 Public administration	1	1

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A third area of research in which the Center has been active is manpower planning both in the U.S. and in developing countries. A current project for the Ohio Advisory Council for Vocational Education seeks to identify and inventory the highly fragmented institutions and agencies responsible for supplying vocational and technical training in Ohio. These data will subsequently be integrated into a comprehensive model for forecasting the State's supply of vocational and technical skills.

Another focus of research is collective bargaining. In a project for the U.S. Department of Labor, staff members are evaluating several current experiments for "expedited grievance procedures," working with unions and management in a variety of industries. The procedural adequacies, safeguards for due process, cost and timing of the new procedure are being weighed against traditional arbitration techniques.

Senior staff also serve as consultants to many boards and commissions at the national and state level. Recent papers have been written for the Joint Economic Committee of Congress, The National Commission for Employment and Unemployment Statistics, The National Commission for Manpower Policy, The White House Conference on the Family, the Ohio Board of Regents, the Ohio Governor's Task Force on Health, and the Ohio Governor's Task Force on Welfare.

The Center maintains a working library of approximately 9,000 titles which includes a wide range of reference works and current periodicals. Also provided are computer facilities linked with those of the University and staffed by approximately a dozen computer programmers. They serve the needs of in-house researchers and users of the National Longitudinal Survey tapes.

For more information on specific Center activities or for a copy of the Publications List, write: Director, Center for Human Resource Research, Suite 585, 1375 Perry Street, Columbus, Ohio 43201.

The Center for Human Resource Research

The Center for Human Resource Research is a policy-oriented research unit based in the College of Administrative Science of The Ohio State University. Established in 1965, the Center is concerned with a wide range of contemporary problems associated with human resource development, conservation and utilization. The personnel include approximately twenty senior staff members drawn from the disciplines of economics, education, health sciences, industrial relations, management science, psychology, public administration, social work and sociology. This multidisciplinary team is supported by approximately 50 graduate research associates, full-time research assistants, computer programmers and other personnel.

The Center has acquired pre-eminence in the fields of labor market research and manpower planning. The National Longitudinal Surveys of Labor Force Behavior have been the responsibility of the Center since 1965 under continuing support from the United States Department of Labor. Staff have been called upon for human resource planning assistance throughout the world with major studies conducted in Bolivia, Ecuador and Venezuela, and recently the National Science Foundation requested a review of the state of the art in human resource planning. Senior personnel are also engaged in several other areas of research including collective bargaining and labor relations, evaluation and monitoring of the operation of government employment and training programs and the projection of health education and facility needs.

The Center for Human Resource Research has received over one million dollars annually from government agencies and private foundations to support its research in recent years. Providing support have been the U.S. Departments of Labor, State, and Health, Education and Welfare; Ohio's Health and Education Departments and Bureau of Employment Services; the Ohio cities of Columbus and Springfield; the Ohio AFL-CIO; and the George Gund Foundation. The breadth of research interests may be seen by examining a few of the present projects.

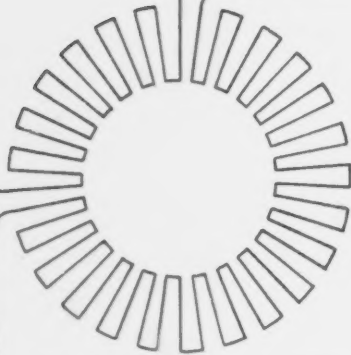
The largest of the current projects is the National Longitudinal Surveys of Labor Force Behavior. This project involves repeated interviews over a fifteen year period with four groups of the United State population; older men, middle-aged women, and young men and women. The data are collected for 20,000 individuals by the U.S. Bureau of the Census, and the Center is responsible for data analysis. To date dozens of research monographs and special reports have been prepared by the staff. Responsibilities also include the preparation and distribution of data tapes for public use. Beginning in 1979, an additional cohort of 12,000 young men and women between the ages of 14 and 21 will be studied on an annual basis for the following five years. Again the Center will provide analysis and public use tapes for this cohort.

The Quality of Working Life Project is another ongoing study operated in conjunction with the cities of Springfield and Columbus, in an attempt to improve both the productivity and the meaningfulness of work for public employees in these two municipalities. Center staff serve as third party advisors, as well as researchers, to explore new techniques for attaining management-worker cooperation.

(continued on inside of back cover)

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Center for Human Resource Research

Pay Premiums for Economic Sector
and Race: A Decomposition

by

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College of
Administrative Science

The Ohio State University

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Columbus, Ohio
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While conducting this analysis, I profited greatly from several discussions with Ron D'Amico. In addition, Randy Hodson, Bob Kaufman, Paul Schervish, Herb Parnes, Steve Hills, and Russ Rumberger provided valuable comments on an earlier draft. I would also like to thank Rufus Milsted for his excellent programming assistance. This report was prepared under a contract with the Employment and Training Administration, U.S. Department of Labor, under the authority of the Comprehensive Employment and Training Act. Researchers undertaking such projects under Government sponsorship are encouraged to express their own judgments. Interpretations or viewpoints contained in this document do not necessarily represent the official position or policy of the Department of Labor. An earlier version of this paper was presented at the American Sociological Association meeting in Boston in August, 1979.

ABSTRACT

This paper examines two issues concerning a dual economy theory of labor markets. Using data from the older men's file of the National Longitudinal Surveys, I first investigate the degree to which differences in rates of pay among economic sectors (competitive, monopoly, public) are accounted for by sector differences in (1) human capital composition, (2) unionization, (3) occupational skill requirements, and (4) other factors producing an ability and willingness to pay high wages. The results of this decomposition suggests that the greater ability and willingness to pay high wages and the higher levels of unionization are the primary factors producing a monopoly sector pay premium. Second, I examine how racial differences in pay vary across sector and perform an analogous decomposition of these differences. In contrast to several previous studies, the relative disadvantages of black men were found to be somewhat greater in the competitive sector than in the monopoly sector.

Introduction

In recent years, an increasing number of social scientists have investigated the ways in which the social organization of production affects the level of labor market rewards attained by employees. A considerable amount of this research has been conducted within a dual economy theoretical framework. This theory postulates that it is important to divide firms or industries in the economy into two sectors according to factors such as economies of scale, capital intensity, profitability, unionization, market power, and political power.¹ Within this framework, the monopoly sector is defined as consisting of firms with high levels of these factors and the competitive sector as consisting of firms with low levels. A basic tenet of this theory is that these differences produce fundamental differences in the processes by which people are matched to jobs. The labor market processes in the competitive sector can be more or less described by some of the principles of neoclassical economics. That is, there is a relatively free market with a price clearing mechanism by which individuals rent their labor to employers. The rate of pay for various forms of labor is viewed as being determined largely by supply and demand considerations. In contrast, the labor market processes in the monopoly sector are determined largely by administrative rules and collective bargaining agreements, and thus are somewhat insulated from short run competitive market factors (Edwards, 1975, 1979; Doeringer and Piore, 1971).

Clearly, dual economy theory constitutes an oversimplification of reality by focusing on a dichotomization of the economy. However, it is a potentially powerful analytical framework since several important hypotheses concerning differential access to labor market rewards follow from this parsimonious partitioning of the economy. For example, it has been hypothesized that (1) there is an economic payoff to working in the monopoly sector (Beck, Horan, and Tolbert, 1978; D'Amico, 1978; Hodson, 1978); (2) the relative opportunities of women and blacks are lower in the monopoly sector (Beck, Horan, and Tolbert, 1978a, 1978b; D'Amico, 1978); (3) the forms of unemployment vary across sector (Shervish, 1978); and (4) economic rewards accrue to jobs rather than to individuals to a greater degree in the monopoly sector (D'Amico, 1978). However, much work needs to be done in testing such hypotheses, as well as deriving new ones, before the utility of this framework can be fully assessed.

This paper examines several issues related to the labor market implications of dual economy theory. Specifically, I examine the size of the economic premium to being employed in the monopoly sector vis-a-vis the competitive sector. Moreover, I investigate the degree to which this premium is accounted for by sectoral differences in the degree and type of unionization and the skill levels of occupations. Of particular interest will be an examination of how the relative opportunities of blacks vary across sectors. Although the primary focus will be on the competitive and the monopoly sectors, I will also investigate the implications of being in the public sector. By examining these issues, it is hoped that we can

(1) improve our understanding of the labor market processes which affect older men, and (2) criticize and improve aspects of dual economy theory by subjecting particular interpretations of it to empirical validation.

Some Labor Market Implications of a Dual Economy

One of the most important labor market implications of a dual economy is the existence of an economic benefit to being employed in the monopoly sector. That is, even after controlling for a variety of individual characteristics, workers in the monopoly sector earn more than their counterparts in the competitive sector (Beck, Horan, and Tolbert, 1978a; D'Amico, 1978; Hodson, 1978). As discussed by D'Amico (1978) and others, there are a number of possible explanations for the economic premium for monopoly sector location. We group these explanations into three categories. The first explanation is that the greater degree of unionization in the monopoly sector provides workers in that sector with greater bargaining power in their negotiations with employers over pay and other rewards.

The second explanation is based on the observation that the occupational distributions differ in the two sectors. More specifically, it is expected that, on average, the jobs in the monopoly sector require greater levels of skill than those in the competitive sector. To the extent that this is true, and to the extent that monopoly sector employers fill these jobs by recruiting individuals with higher levels of human capital, then this is not part of a premium to monopoly sector employment but a reflection of differences in the characteristics of individuals in the monopoly and competitive sectors. However, to the extent that monopoly sector employers fill these jobs by hiring the same sort of workers as competitive sector

employers do, and then allocate them to more highly skilled jobs, then this would constitute part of the monopoly sector premium. Such differential allocation is expected because monopoly sector firms tend to be more capital intensive and tend to plan further into the future. Consequently, they are likely to be more interested in developing a stable work force, and thus, are likely to make greater investments in the skill development of their workers.

The third set of explanations has to do with reasons why monopoly sector employers would pay more than competitive sector employers to workers in jobs requiring the same degree of skill. Due to greater scale efficiencies, product market power, and political power, monopoly sector firms are better able to pay high wages. In addition, because of their greater desire for a stable work force and their interest in creating ties between workers and their jobs, they also have greater incentives to pay high wages.

Unfortunately, almost no empirical work has been done to assess the relative importance of these explanations of the monopoly sector premium. This paper constitutes an initial effort in this direction.

Although blacks are disadvantaged relative to whites in all sectors, there is disagreement as to whether the relative black disadvantages are different in the monopoly and competitive sector. Until very recently, the general consensus among those addressing this issue was that the degree of racial discrimination was greater in monopolistic than in competitive industries. This generalization holds whether the analysis was conducted within a neoclassical or a dual economy framework (Becker, 1971; Shepherd, 1970; Comanor, 1973; Haessel and Palmer, 1978; Beck, Horan, and Tolbert,

1978b; D'Amico, 1978). However, recent empirical work by Kaufman and Daymont (1978), Daymont (1979), and Johnson (1979) supports the conclusion that, all things considered, the level of discrimination is similar in the two sectors. On a conceptual level, arguments have been made to explain both sets of findings.

According to neoclassical economic theory, competitive markets operate such that inefficient firms will eventually be driven out of business. By definition, a discriminating firm is inefficient in that it is paying a white more than the wage at which it could hire an equally productive black. Hence the theory predicts that discriminating firms will be at a competitive disadvantage and will eventually be driven out of business by firms that do pay whites and blacks according to their relative productivity (Becker, 1971). However, firms with monopoly power are immune to these competitive pressures not to discriminate. Thus to the extent that discrimination exists, it is expected to exist primarily in monopolistic rather than competitive industries (Becker, 1971; Shepherd, 1970; Haessel and Palmer, 1978).

However, there are several reasons why this hypothesis may not be valid (Kaufman and Daymont, 1979). For example, the rationale behind this hypothesis is based on the assumption that the economy is in equilibrium while the American economy is at continual and changing disequilibria. Thus, one might question the degree to which competitive markets operate such that firms that are not efficient purchasers of labor (e.g., discriminating firms) are actually driven out of business. In addition, the logic of the neoclassical argument does not imply that immunity from competitive pressures will necessarily lead to greater discrimination; it implies only that firms with such immunity have more latitude to discriminate. Thus, the relative

incentives of competitive and monopolistic industries to discriminate or not to discriminate must be considered. Concerning these incentives, we suspect that in recent years monopolistic firms may have had more incentives not to discriminate than competitive firms. Because of their high degree of market power, and because they tend to be large, monopolistic firms have been more visible to the government and to the public at large. This visibility, coupled with an antidiscriminatory public policy, provided such firms with an incentive not to discriminate. For example, both the Equal Employment Opportunity Commission and the Office of Federal Contract Compliance were more likely to scrutinize the employment practices of large than small firms (Burman, 1973; Selznick, 1969).

Proponents of dual economy theory have also concluded that the level of discrimination will be greater in the monopoly sector than in the competitive sector (e.g., Beck, Horan, and Tolbert, 1978; D'Amico, 1978). Two lines of reasoning that are sometimes alluded to are a statistical discrimination argument and a conspiracy argument.²

Concerning statistical discrimination, it is believed that employers may underestimate the abilities of blacks, or may have less reliable information concerning their abilities, and therefore allocate blacks to less desirable jobs. Beck, Horan, and Tolbert (1978b) seem to argue that this form of discrimination is more pronounced in the monopoly sector. On the other hand, a consideration of sector differences in bureaucracy may lead to the hypothesis that the statistical discrimination argument is as important or even more important in the competitive sector. That is, since employment processes are less formal and more arbitrary in the

competitive sector, the use of race as an indicator of productivity may be greater in this sector than in the monopoly sector.

It is also argued that employers promote racism within the working class to create intra-working-class cleavages and keep them from developing a collective consciousness and organizing as a united group (Gordon, 1972). Such strategies for worker control may be more important in the monopoly sector for two reasons. First, as indicated above, a stable work force is more important to employers in the monopoly sector. Second, monopolistic employers have a greater ability to pay for such racism because of their higher profit margins. Interestingly, this second point brings us back to the primary argument of neoclassical theory: competitive sector employers do not discriminate as much as their monopoly sector counterparts because they cannot afford to.

Analytical Strategy

The primary analytical problem is to decompose the difference in the mean level of the rate of pay in any two sectors into the following components:

(1) Human capital composition. The amount of the sector difference in pay attributable to sector differences in the levels of several human capital (and location of residence) factors;

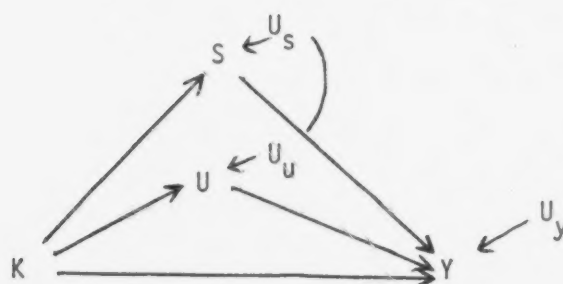
(2) Occupational skill requirements composition. The amount of the sector difference in pay attributable to sector differences in the way that men (with similar levels of human capital) are allocated to occupations with different skill requirements;

(3) Union composition. The amount of the sector difference in pay attributable to sector differences in the degree and type of unionization (among men with similar levels of human capital);

(4) A Residual. The amount of the sector difference in pay not attributable to the factors included in the model.

Analogous decompositions were made for racial (white-black) differences in pay. As implied by their definition, these components are conceptualized and are calculated in the context of a (block) recursive model for each of the 6 combinations of sector (competitive, monopoly, public) and race (white, black). As illustrated in Figure 1, human capital factors (K) affect the level of occupational skill requirements (S) and unionization (U). In addition, each of these sets of factors has a direct effect on hourly earnings (Y) (converted to log 1976 dollars). In this model, the association between occupational skill requirements and unionization not accounted for by human capital factors is left unanalyzed.³

Figure 1 Model of Earnings Attainment



More specifically, for each combination of sector and race, we posit the following model,

$$Y = a + \sum_i b_i' K_i + \sum_j c_j S_j + \sum_k d_k U_k + u_y \quad (1)$$

$$S_j = e_j + \sum_i f_{ij} K_i + u_{sj} \quad (2)$$

$$U_k = g_k + \sum_i h_{ik} K_i + u_{uk} \quad (3)$$

with the following reduced form,

$$Y = r + \sum_i t_i K_i + v_y \quad (4)$$

where Y , K , S , and U are defined above and where a , b , c , d , f , g , h , are parameters to be estimated and u and v are residual terms. The variables in K constitute a fairly standard set of human capital factors and other control variables.⁴

Care must be taken in choosing an indicator of occupational skill requirements. Recall that the major purpose of including occupational skill requirements is to assess the degree to which the sectoral (racial) pay differences are due to sectoral (racial) differences in the allocation of men with similar individual characteristics to jobs with different skill requirements. Thus, I need an indicator of occupational skill requirements that is a measure of the job and not the incumbent of the job. At the same time I need an indicators that measures the activities of the job and does not constitute a direct measure of the rewards accruing to the job. In light of these considerations, the General Educational Development (GED) and the Specific Vocational Preparation (SVP), measured in years of

training time, from the Dictionary of Occupational Titles (DOT) were used as indicators of occupational skill requirements. These measures were used because they are specifically designed to be an estimate of the education level and the length of vocational preparation needed to perform adequately in an occupation (Fine, 1968; U.S. Employment Service, 1965).⁵

The degree of unionization, actually collective bargaining coverage, was measured at both the individual and industry level. At the individual level, three mutually exclusive dummy variables were included indicating whether or not the pay of the respondent was set by a collective bargaining agreement between the employer and an industrial type union (CBIND), a craft type union (CBCFT), or an "other" type union (CBOTH).⁶ It is expected that unionization measured at the individual level will have a positive impact on pay. Unionization may also affect the pay of some individuals not directly covered by a collective bargaining agreement. This will be the case if, for example, the nonunionized firms in an industry pay a wage about equal to that in the unionized firms in order to combat union organizing efforts. To the extent that this occurs, there will be a payoff to being in a highly unionized industry even if the individual is not directly covered by a collective bargaining agreement. To allow this indirect effect of unionization, we included a variable defined as the proportion of all workers in the industry (measured at the 3-digit census code level of aggregation) that were covered by a collective bargaining agreement (% union) (Freeman and Medoff, 1979).

Sector was coded as public if the individual was employed by a federal, state, or local government at the time of the interview. Among private sector employees, sector was coded as competitive or monopoly according to Hodson's (1979) classification scheme for industries.⁷ According to this scheme, an industry was assigned to the monopoly sector if (1) the average size of capital of firms in the industry tended to be large, and (2) if the industrial product market tended to be dominated by a few large firms. Otherwise an industry was assigned to the competitive sector (see Appendix B for the sector assignment of each industry).

The data used in this analysis were drawn from the older men sample (men aged 50-64 in 1971) of the National Longitudinal Surveys (NLS) (for a more complete description of these data, see Center for Human Resource Research, 1979). The basic sample consisted of all black and white men who had been a wage or salaried worker within 6 months prior to the interview in any of the years 1969, 1971, or 1976 for which certain other criteria were met.⁸ For each individual, an observation was included for any of the three years in which the criteria were met. Thus the data file consists of 1, 2, or 3 observations for each individual. By pooling the three cross sections we are able to increase the precision with which we can estimate the parameters of our model. Ordinary least squares (OLS) was used to estimate the model since it provides unbiased estimates of the parameters. Moreover, even though OLS is not maximally efficient, previous experience suggests that there are only small differences in the parameters estimated by OLS and a more efficient error components

GLS procedure (see also Maddala and Mount, 1973). However, OLS gives biased estimates of the standard errors of the parameters. Therefore the standard errors are not presented (Maddala, 1971).

A regression standardization approach (Duncan, 1969; Winsborough and Dickenson, 1969; Iams and Thornton, 1975) was used to decompose the sector (or race) difference in the mean of log hourly earnings into the components listed in the beginning of this section. See Appendix A for the algebra of this decomposition. There are perhaps two aspects of this decomposition that should be noted here. First, the human capital composition component represents a total effect of sector (race) differences in human capital. That is, this component includes the indirect effect of human capital (K) differences through occupational skill requirements (S) and unionization (U), as well as its direct effect on rate of pay (Y).⁹ Second, each sector (or race) decomposition was done two ways. The first used the coefficients from the regression for the second sector (or blacks) as the standard. The second used the coefficients for the first sector (or whites) as the standard.

Results: Sector Difference in Pay

The means for all the variables in our model for each combination of race and sector are shown in Table 1. These results reveal some sector differences in human capital factors; however, given the emphasis that is sometimes placed on sector differences in the composition of the workforce (e.g., Beck, Horan, and Tolbert, 1978; Hodson, 1978), the means of most of the human capital type factors are quite similar in the competitive and monopoly sectors. In particular, the mean levels of education are almost identical in these two sectors, at least for whites. Although

Table 1 Variables Means by Sector and Race for Older Men

Variables	Sector					
	Competitive		Monopoly		Public	
	Whites	Blacks	Whites	Blacks	Whites	Blacks
Dependent Variable						
LNPAV	1.65	1.14	1.85	1.50	1.78	1.52
Human Capital and Residence Factors						
YR	71.2	71.1	71.1	71.2	71.3	71.3
ED	10.5	6.68	10.5	7.48	11.4	8.74
EXP	38.6	42.5	37.6	41.1	36.3	38.9
MILT	1.42	.744	1.50	.777	2.34	1.63
HLTH	.206	.235	.189	.148	.205	.196
SMSA	.723	.647	.794	.824	.690	.766
SIZELF	.909	.683	.828	1.08	.721	1.04
SOUTH	.265	.710	.178	.445	.343	.609
FAOCC	30.4	16.2	28.4	15.2	29.2	15.3
FARM	.302	.595	.254	.463	.317	.377
Job Skill Requirements						
GED	11.3	8.99	11.3	8.90	11.9	9.88
SVP	2.17	.938	2.45	1.01	2.31	1.33
Unionization						
% UNION	.230	.250	.507	.569	.294	.288
CBIND	.076	.048	.308	.398	.022	.016
CBCFT	.118	.121	.103	.096	.024	.040
CBOTH	.053	.092	.090	.167	.241	.279

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this is at variance with the results of Beck, Horan, and Tolbert (1978), it is in general agreement with the results of Hodson (1978), whose sector classification scheme I used.¹⁰ These results suggest that the differences in the composition of the sectors in terms of individual characteristics may be less important than sector differences in how individual characteristics are translated into economic rewards. The results from the regression of log hourly earnings on the explanatory variables for each combination of race and sector are shown in Table 2. I will refer to selected aspects of the results in Tables 1 and 2 in the discussion of the decomposition of sector pay differentials shown in Table 3. The first row of both panels in this table shows the difference in the mean level of log hourly earnings in the two sectors identified at the top of the column. Since these entries, and all of the other entries in the Table represent differences in log dollars, they approximate a proportional difference.¹¹ The second row represents the human capital composition component, that is, that portion of the total difference that is due to sector differences in the mean level of human capital and location of residence factors. The portion of the total difference not accounted for by human capital composition is presented in the row labelled "sector premium." This entry approximates the proportionate difference in pay in the two sectors for men with the same measured human capital characteristics. The bottom rows in each panel show the decomposition of this sector premium into three components; occupational skill requirements composition, union composition, and a residual.

Table 2

15

Determinants of Log Hourly Earnings for Older Men, by Sector and Race

Explanatory Variables	Sector					
	Competitive		Monopoly		Public	
	Reg. Coeff.	Stand. (Beta) Coeff.	Reg. Coeff.	Stand. (Beta) Coeff.	Reg. Coeff.	Stand. (Beta) Coeff.
Human Capital 8						
Residence Factors						
			A. WHITES			
YR	.00585	.03	.00896	.05	.00439	.02
ED	.0351	.21	.0333	.24	.0292	.23
EXP	-.00556	-.07	-.00525	-.08	-.00994	-.17
MILT	-.153	-.07	-.0130	-.08	.00181	.02
HLTH	-.143	-.11	-.0534	-.05	-.0908	-.08
SMSA	.158	.14	.0804	.08	.0874	.08
SIZELF	.0216	.05	.0200	.05	.0754	.17
SOUTH	-.0789	-.07	-.0315	-.03	-.0356	-.04
FAOCC	.00197	.09	.000681	.03	.000612	.03
FARM	-.0564	-.05	-.0751	-.08	.0194	.02
CONST	.205		.318		.887	
Job Skill Requirements						
GED	.0551	.25	.0514	.30	.0262	.16
SVP	.0191	.07	.0209	.08	.0521	.21
Unionization						
% UNION	.256	.09	.0961	.05	.181	.07
CBIND	.168	.09	.0250	.03	.0479	.01
CBCFT	.245	.15	.0590	.04	.0635	.02
CBOTH	.138	.06	-.00528	.00	.0410	.04
R ² (ADJ)	.39		.39		.47	
S.E.E.	.403		.334		.349	
N	1402		1972		996	

Table 2 (continued)

Explanatory Variables	Sector					
	Competitive		Monopoly		Public	
	Reg. Coeff.	Stand. (Beta) Coeff.	Reg. Coeff.	Stand. (Beta) Coeff.	Reg. Coeff.	Stand. (Beta) Coeff.
Human Capital 8						
Residence Factors			B. BLACKS			
YR	.0178	.11	.0102	.08	.00598	.04
ED	.00656	.05	.00489	.05	.0229	.20
EXP	-.0106	-.15	-.00792	-.13	-.00358	-.06
MILT	.00534	.02	-.00838	-.03	.00210	.02
HLTH	-.0281	-.03	-.0241	-.02	-.00607	-.01
SMSA	.160	.17	.151	.17	.213	.20
SIZELF	.0625	.15	.0137	.05	.0626	.17
SOUTH	.0264	.03	-.102	-.15	-.0664	-.07
FAOCC	.000792	.02	.00192	.06	.00251	.06
FARM	.0323	.04	-.0356	-.05	-.00369	-.04
CONST	-.212		.570		.348	
Job Skill Requirements						
GED	.00731	.03	.00482	.03	.0377	.25
SVP	.0523	.14	.0585	.19	.0180	.06
Unionization						
% UNION	.338	.15	.294	.18	.119	.05
CBIND	.210	.10	.212	.30	.181	.05
CBCFT	.487	.36	.136	.12	.190	.08
CBOTH	.309	.20	.163	.18	.0958	.10
R ² (ADJ)	.45		.41		.55	
S.E.E.	.329		.267		.302	
N	587		669		499	

Table 3 Decomposition of Sector Pay Differences and Sector Premiums by Race for Older Men^a

Component	Sector Differences					
	Monopoly - Competitive		Public - Competitive		Monopoly - Public	
	Comp. Coeff.	Mon. Coeff.	Comp. Coeff.	Pub. Coeff.	Pub. Coeff.	Mon. Coeff.
A. WHITES						
Total Sector Difference	.20	.20	.13	.13	.07	.07
(minus) Human Capital Composition	.03	.02	.03	.05	-.04	-.03
(equals) Sector Premium	.17	.18	.10	.08	.11	.10
Job Skill Req. Composition	.01	.00	.01	.00	.02	.00
Unionization Composition	.10	.03	.02	.02	.04	.03
Residual Sector Premium	.06	.15	.07	.06	.05	.07
B. BLACKS						
Total Sector Difference	.35	.35	.37	.37	-.02	-.02
(minus) Human Capital Composition	.10	.11	.12	.16	-.03	.02
(equals) Sector Premium	.25	.24	.25	.21	.01	-.04
Job Skill Req. Composition	.00	.00	.01	.01	-.01	-.02
Unionization Composition	.16	.16	.01	-.01	.09	.14
Residual Sector Premium	.09	.08	.23	.21	-.07	-.16

^aEach decomposition was calculated in two ways. The first used the coefficients from the regression for the second sector as the standard. The second used the coefficients for the first sector as the standard. See the text and Appendix A for more information.

The first two columns in Table 3 decompose the mean pay difference between the monopoly and competitive sectors. The results indicate that for whites a small proportion (10-15 percent) of the total sector difference in pay is accounted for by human capital and residential differences leaving a substantial sector premium of about .17 or .18 (or about 20 percent). This finding supports previous findings (D'Amico, 1978; Hodson, 1978; Beck, Horan, and Tolbert, 1978) that even after controlling for human capital factors there remains a substantial economic payoff to being in the monopoly sector vis-a-vis the competitive sector.¹²

Occupational Skill Requirements. Virtually none of this premium is accounted for by the occupational skill requirements component. Thus, it appears that monopoly sector firms do not invest more in the training of their workers to perform in more highly skilled jobs than do competitive sector firms. This result is contrary to my expectations given the higher level of technology and the tendency toward long range planning in the monopoly sector.

It is important to remember that the negligible size of the occupational skill requirements component does not imply that job skill requirements fit into the earnings determination process in the same way in both sectors. To the contrary, there is some evidence that for whites at least, occupational skill requirements are more important in the determination of hourly earnings in the monopoly sector. First, the zero-order correlations between log hourly earnings and our measures of occupational skill requirements are greater in the monopoly sector (.54 for GED and .47 for SVP) than in the competitive sector (.41 for GED and .35 for SVP). Second, a somewhat larger portion of the effects of human capital

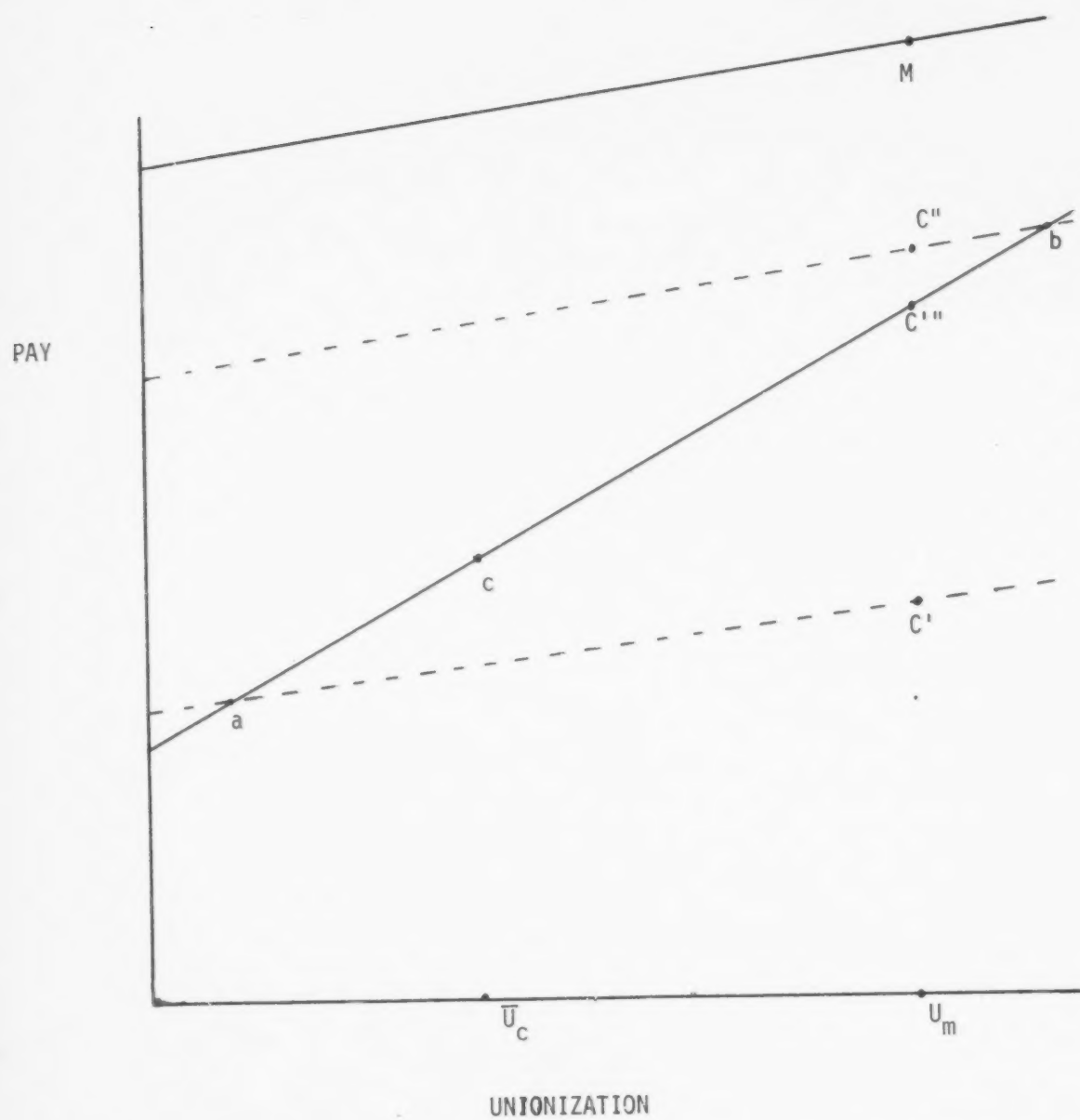
and background factors such as education and father's occupation are mediated by occupational skill requirements.¹³ Thus, earnings appear to be more tightly linked to jobs in the monopoly sector; and, moreover, a well delineated job structure appears to play a more important role in the process by which white men obtain labor market rewards. This suggests that a job competition model, as opposed to a wage competition model (Thurow, 1975), may be more relevant to the monopoly sector than the competitive sector.

Unionization. Not surprisingly, we find substantial differences in the extent of and returns to unionization in the monopoly and competitive sectors. First, although there are small sector differences in the extent of craft and "other" types of unionization, the extent of industrial type unionization is much greater in the monopoly sector (Table 1). Second, the economic returns to each type of unionization measured at the individual level as well as the return to unionization measured at the industry level are all substantially greater in the competitive sector. The lower payoff to unionization measured at the individual level in the monopoly sector may be, in part, a reflection of greater "wage patterning" in that sector. Ross (1957) notes that there is variation across industries in the degree to which there is uniformity in wage rates across firms. He further argues that wage rates will be more uniform in those industries that are characterized by capital intensity, large firms, product market concentration, and high degrees of unionization (or in the terminology of dual economy theory, in the monopoly sector). Thus, the lower effects of the union variables measured at the individual level in the monopoly sector

supports Ross's argument. The lower effect for the union variable measured at the industry level in the monopoly sector could reflect either of two very different realities. On the one hand, it could indicate that unions are not an important determinant of rates of pay in the monopoly sector. However, I suspect that it is more likely to be a reflection of a substantial degree of "across industry" wage patterning in the monopoly sector.

To understand better the role of unionization in sector pay differentials it may be worthwhile to consider the question of what would occur to the monopoly sector premium if the degree of unionization (especially industrial) in the competitive sector was increased so that it became equal to that in the monopoly sector. To do this let us first examine the general nature of the relationship between unionization and pay for whites in the two sectors (Figure 2). The two solid lines in this Figure illustrate the expected level of pay for different levels of unionization (controlling for other variables). The different slopes correspond to the fact that the payoff to unionization is higher in the competitive sector than the monopoly sector. The mean levels of unionization in the two sectors are identified as $\bar{U}_C$ and $\bar{U}_M$. The mean levels of pay in the two sectors are identified by the points C and M, and the vertical distance between these points represents monopoly sector premium controlling for all variables except unionization. The issue then is what will happen to the monopoly sector premium if $\bar{U}_C$ moves to the right to correspond to $\bar{U}_M$. Of course the answer depends upon the nature of any movement in the line representing the expected level of pay in the competitive sector. From

Figure 2 Illustration of the Effect of Unionization on the Monopoly Sector Pay Premium



an analytical point of view we might identify three possible cases. The first two cases assume that as the level of unionization approaches that in the monopoly sector, then the returns to unionization will be reduced approaching those in the monopoly sector.

The first case assumes that the reduced returns to unionization are produced by a combination of no change in pay for nonunionized workers and lower pay for the average unionized worker in the competitive sector. This change can be represented in Figure 2 by rotating the expected pay line for the competitive sector about point "a," somewhere to the left of U_c to correspond to a nonunionized worker, until it becomes (the lower dotted line) parallel to the expected pay line for the monopoly sector. If this were to happen the new mean pay level in the competitive sector would be at point C'. In this case, raising the level of unionization in the competitive sector would produce little change in, or possibly even increase, the monopoly sector premium.¹⁴

The second case also assumes that the returns to unionization in the competitive sector are reduced to those in the monopoly sector. However, this reduction is now presumed to occur because of an increase in pay for nonunionized competitive sector workers. This is a reasonable assumption if we believe that the "wage patterning" suspected of being important in the monopoly sector will become important in the competitive sector as it becomes more unionized. This change can be represented in Figure 1 by again rotating the expected pay line for the competitive sector, this time about a point "b" which corresponds to a unionized worker. In this case the average pay in the competitive sector would be increased to point C'', thus substantially reducing the monopoly sector premium.

The third case assumes that wage patterning will not be able to operate in the competitive sector the way it does in the monopoly sector. That is, because of the many differences between the sectors (e.g., economies of scale, product market power, political power) that help produce lower profits in the competitive sector, many nonunionized firms in this sector will simply not be able to pay union pay rates. This may occur if the sector differences in returns to unionization are due to basic differences in the social organization of production in the two sectors rather than to differences in the degree of unionization in the two sectors. In this case the average pay in the competitive sector would simply move along the expected pay line for the competitive sector to point C'''. Under these assumptions the monopoly sector premium would be reduced by .10 (the union composition component using the coefficients from the competitive sector as the standard). It is fairly safe to say that none of these three cases describes reality precisely. Since newly unionized workers would probably be working for firms less able than already unionized firms to pay high wages, the pay premium gained by these workers becoming organized would be likely to be less than the premium enjoyed by workers already unionized in the competitive sector. However, the average pay of workers who remain nonunion would probably increase somewhat due to wage patterning. Thus, a reasonable estimate of the contribution of unionization to sector differences in pay for whites would probably be somewhere between .03 and .10; that is, the union composition components calculated using the coefficients from the monopoly and competitive sectors, respectively.

This leaves a residual component of between .07 and .15 that is unexplained by sector differences in unionization and occupational skill requirements. This suggests that a substantial part of the sector premium is a result of monopoly sector firms possessing (1) a greater ability to pay high wages due to their greater economies of scale, market power, and political power, coupled with (2) a greater willingness to pay high wages due to a greater interest in developing a stable workforce. Note that this interpretation poses the important question of to what degree is this greater ability to pay high wages due to greater efficiency resulting from scale economies, or due to a greater ability to exploit the public through product market power and political power. Beliefs about the relative importance of these two factors are often intense; however, they appear to be more a function of political ideology rather than scientific evidence. Unfortunately, such evidence may remain elusive given the difficulty in obtaining valid indicators of the concepts of scale economies, market power, and political power independent of each other across a broad range of industries.

It is interesting to observe that the average pay for older white men in the public sector is greater than in the competitive sector and somewhat lower than in the monopoly sector. Controlling for human capital factors, the pay of public employees is about 9 percent higher than their counterparts in the competitive sector but is about 10 percent lower than workers in the monopoly sector. Thus these results do not support the belief held by some that public employees are overpaid.

Relative black disadvantages. Turning our attention to racial differences in pay, we see that they are largest in the competitive sector and smallest in the public sector (Table 4). In each sector, a substantial amount of this difference remains after controlling for human capital and location of residence factors, indicating that blacks are at a substantial pay disadvantage relative to whites in each sector. Also in each sector, the relative black disadvantage is greater when the black coefficients are used as a standard than when the white coefficients are used. Of course, this is due to the fact that, as has been found in many other studies, the returns to most human capital factors, in particular education, are greater for whites than for blacks. One way to interpret this is that the disadvantage, relative to whites, of blacks with the characteristics of a typical black are substantial, but the relative disadvantages of blacks with the characteristics of a typical white are even larger.

Regardless of which coefficients are used as a standard, the relative black disadvantages are greatest in the competitive sector and smallest in the public sector. Thus, our results concerning the disadvantages of blacks in the monopoly and competitive sectors contrast sharply with those of several other investigators (Becker, 1971; Shepherd, 1970; Haessel and Palmer, 1978; Beck, Horan, and Tolbert, 1978b; D'Amico, 1978) who found greater disadvantages for blacks in monopolistic industries. Our results are more consistent with those of Kaufman and Daymont (1978) and Johnson (1979) who found that the level of black disadvantages were about the same or somewhat lower in monopolistic industries.¹⁵

Table 4 Decomposition of Racial Differences in Pay and Relative Black Disadvantage by Sector for Older Men^a

Component	Sector					
	Competitive		Monopoly		Public	
	Black Coeff.	White Coeff.	Black Coeff.	White Coeff.	Black Coeff.	White Coeff.
Total Racial Difference	.51	.51	.35	.35	.26	.26
(minus) Human Capital Component	.13	.31	.14	.21	.13	.15
(equals) Relative Black Dis- advantage	.38	.20	.21	.14	.13	.11
Job Skill Req. Component	.06	.08	.08	.07	.05	.04
Unionization Component	-.04	.00	-.08	.00	.00	.00
Residual Black Disadvantage	.36	.12	.21	.07	.08	.07

^aEach decomposition was calculated in two ways. The first used the coefficients from the regression for blacks as the standard. The second used the coefficients for whites as the standard. See the text and Appendix A for more information.

Besides experiencing pay disadvantages within sectors, it is also possible that blacks are disadvantaged by being channelled into the competitive, or lowest paying sector. Indeed, the proportion of blacks is somewhat higher in the competitive sector than in the monopoly sector. However, the results of an ancillary analysis suggest that this is a result of racial differences in individual characteristics. That is, when the human capital and location of residence factors are controlled, blacks were no more likely to be allocated to the competitive sector than to the monopoly sector.¹⁶ Blacks were, however, more likely to be allocated to the public sector than to either of the private sectors.

Earlier, we identified several theoretical hypotheses that have been used to explain the various empirical findings concerning sector differences, or similarities, in black disadvantages. Our results are more consistent with some of these hypotheses more than others. For example, our results do not support the neoclassical hypothesis that (1) because discrimination is inefficient, competition will force discriminating firms to stop discriminating or eventually they will be driven out of business, and (2) that due to their market power, monopolistic firms are immune to such competitive pressures. It appears that any inefficiencies produced by discriminating against blacks are not nearly as important as other factors in determining the success and viability of firms, since many discriminating firms have survived in competitive industries. These results are consistent with the hypothesis that because of their size and market power, and their resulting visibility to the public and antidiscrimination agencies of the government, monopoly sector firms may be more wary of discriminating than firms in the competitive sector.

These results also support the hypothesis that the greater levels of bureaucratization in the monopoly sector lead to lower levels of black disadvantages in that sector than in the competitive sector. One of the key distinctions between bureaucratic and nonbureaucratic organizations is the greater use in the former of formal and nonarbitrary decision rules. Thus, bureaucratic officials are constrained in the degree to which they are able to incorporate subjective judgments and personal preferences when making decisions, including employment decisions (Selznick, 1969). Consequently, one might suspect that particularistic criteria such as race would be less important than universalistic criteria in the employment processes of large bureaucratic firms in the monopoly sector.

As noted above, this consideration of bureaucracy is closely related to the statistical discrimination argument. This argument holds that employers allocate blacks to less productive jobs because they underestimate the abilities of blacks and/or have less reliable information concerning their abilities (Thurow, 1975; Phelps, 1972; Doeringer and Piore, 1971). Thus, we would expect this phenomenon to be less important in those segments of the labor market where employment processes are characterized by objective criteria for evaluating the abilities of prospective workers, that is, the monopoly sector.

The relatively low levels of black disadvantages in the public sector lend further support to the hypotheses that bureaucratization leads to lower levels of racial discrimination. Of course, another factor contributing to this finding is that the government itself is one of the most important institutions in reducing discrimination.

This analysis has compared the level of black disadvantages across sectors. However, our results may also be relevant for trying to understand temporal changes in black disadvantages. As the volume of empirical evidence mounts, it is becoming increasingly clear that the level of black labor market disadvantages is declining (e.g., Freeman, 1973; Smith and Welch, 1977; Johnson and Sell, 1976; Farley, 1977; Daymont, 1979). However, there is much debate over the reasons for this change. Neoclassical economic theory of competitive markets leads directly to the conclusion that the pressures of competition is a basic force that will lead to lower levels of discrimination in the long run (e.g., Becker, 1971). Our results suggest that to the extent that there are basic forces embedded in our social system which will lead to less discrimination, they are not so much related to competitive market pressures, but to the processes of modernization and industrialization (Levy, 1966; Kerr et al., 1960). That is, as industrialization becomes more advanced, labor market relationships become more formal, more rationalized, and less personal, implying that particularistic criteria such as race become less important for labor market processes.

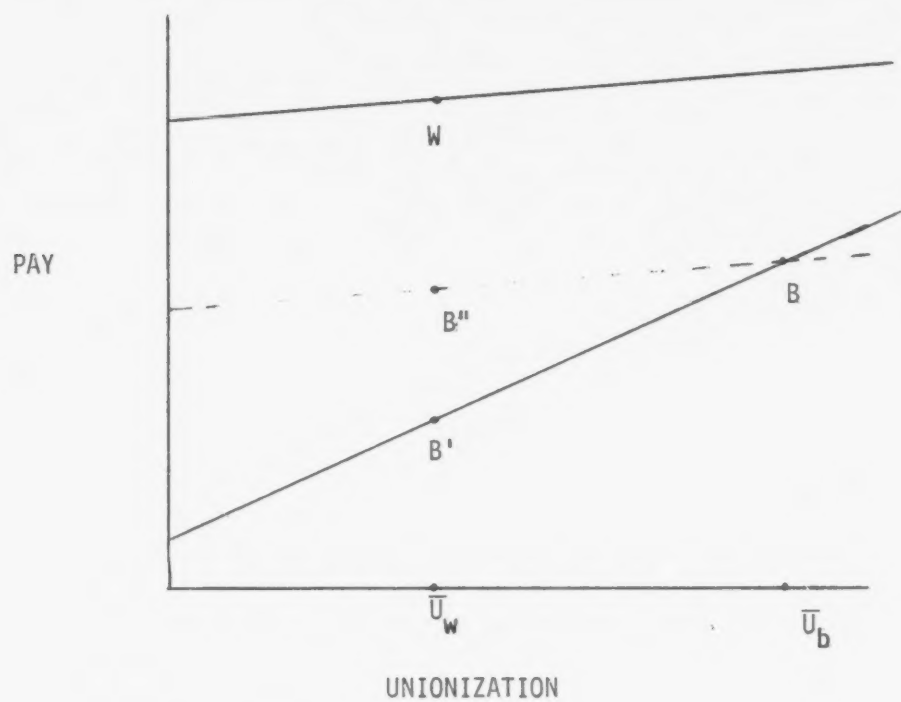
Whereas the differential allocation of men to jobs with different skill requirements did not explain much of the sector differences in pay, it did account for a significant portion of the relative black disadvantages within each sector. This portion varies somewhat by sector but averages about 35 to 40 percent of the total black disadvantage. This indicates that an important cause of the labor market disadvantage suffered by

blacks, relative to whites with similar characteristics, is that they are allocated jobs requiring less skill.

Despite the sector differences in other aspects of unionization, the pattern of racial differences in unionization are similar in the monopoly and competitive sectors (as shown in Tables 1 and 2 and as illustrated in Figure 3). First, the returns to unionization (as indicated by the slopes of the expected pay lines) are greater for blacks in both sectors. However, as the figure suggests, these greater "returns" to blacks might more accurately be thought of as a reflection of a greater penalty for not being organized rather than as a greater payoff to being unionized for blacks. Second, the level of unionization is somewhat greater for blacks ($\bar{U}_b$) than for whites ($\bar{U}_w$).

Thus, if we were to equalize the level of unionization by reducing U_b and the black returns to unionization were to remain the same, the average level of pay for blacks in either of the private sectors would decrease from B to B'. If in the process of changing the black level of unionization to equal the white level, the returns for blacks become equal to the returns for whites, the average level of pay for blacks would change little (from B to B''). This suggests that the level of black disadvantages in these

Figure 3 Illustration of the Effect of Unionization on
Black Labor Market Disadvantages



sectors would have been about the same or even greater had it not been for the effect of unions. Of course, this does not imply that unions have not discriminated--many have. However, it does suggest that the effects of such discrimination have been less costly to blacks than other aspects of labor market discrimination and/or, that such discrimination has been ameliorated by the effect that many unions have had in unifying particular workforces, thus lessening racial differences.

Summary and Conclusions

The most important findings of this analysis are:

(1) As has been found in previous studies, there is a substantial difference in pay among older men in the monopoly and competitive sectors. More importantly, after controlling for a number of human capital and location of residence factors, there exists a substantial pay premium for whites to monopoly sector employment of about 20 percent.

(2) Very little, if any, of this monopoly sector premium is due to sector differences in occupational skill requirements. However, a significant portion is accounted for by sector differences in the extent and type of unionization.

(3) A substantial portion of the monopoly sector premium is due to factors not explicitly included in the model. This suggests that part of this premium is a result of monopoly sector firms having (a) a greater

ability to pay high wages due to their greater economies of scale, market power, and political power, and (b) a greater willingness to pay high wages due to a greater interest in developing a stable workforce.

(4) The earnings determination process varies across sectors. In particular, well delineated job hierarchies play a more important role in the monopoly sector.

(5) Controlling for human capital and location of residence factors, public sector employers pay older men more than employers in the competitive sector but less than employers in the monopoly sector.

(6) In contrast to the results of several previous studies, the relative disadvantages of older black men are greater in the competitive sector than in the monopoly sector. This may be partially due to the greater degree of bureaucratization in the monopoly sector. The disadvantages of blacks are lowest in the public sector.

(7) In each sector, a significant portion of this disadvantage is due to the allocation of blacks, relative to whites with similar characteristics to jobs requiring less skill. In the competitive and monopoly sectors, the disadvantage of blacks might have been even greater had it not been for the effects of unions.

The results of this analysis provide strong support for the belief that labor market processes vary depending upon the organization of the process of production. Moreover, it appears that many of the ideas and concepts proposed in dual economy theory are useful for understanding this variation. However, more theoretical and empirical work needs to be done to identify the various mechanisms which produce observed sector differences in labor market processes. In particular, we need a better

understanding as to the way in which sector differences in outcomes and processes are due to economies of scale, market power, political power, bureaucracy, capital intensity, unionization, distribution of occupational skill requirements, and other factors.

FOOTNOTES

¹It should be noted that the concepts of duality and segmentation have been used in a number of different ways in the literature on dual economy theory, dual labor market theory, and labor market segmentation. One important distinction is whether sectors or segments are defined in terms of (1) the social organization of firms or industries, (2) characteristics of occupations, careers, or job rewards, or (3) a combination of both industrial and occupational characteristics. In this paper I define sectors, both conceptually and operationally, in terms of the social organization of industries, and then empirically examine how sectors so defined are different in terms of selected aspects of occupational distributions, labor market processes, and job rewards.

²Labor unions have also been cited as a reason for greater discrimination in the monopoly sector. In particular, Beck, Horan, and Tolbert (1978) assert that (1) since unions have operated in a way that works to the disadvantage of blacks, and (2) since unionization is more extensive in the monopoly sector, this should lead to greater discrimination in the monopoly sector. However, this argument fails to take account of the different types of union organization (Daymont, 1970). There is substantial variation across unions in the degree to which they control access to jobs and in the degree to which they discriminate against blacks (Northrup, 1944; Marshall, 1965; Ashenfelter, 1972). Although a detailed analysis of such union differences is beyond the scope of this study, it is useful to consider some differences between craft and industrial type unions. Craft or referral type unions control access to jobs in a more fundamental way than industrial type unions. Through the processes of the hiring hall, and by having some control over access to skills and credentials through apprenticeship programs, craft unions exercise substantial control over both the size and composition of the labor pool for certain jobs; that is, they have a significant degree of monopoly power in the true sense of the word. Since they have historically been able to obtain and maintain such power without including blacks, they had little incentive to do so; and the pervasive racism in our society has provided ample incentive not to do so.

On the other hand, industrial unions have not been able to control the size and composition of the labor pool for specific jobs. Their limited control over access to jobs has been largely based on their ability to negotiate formal rules regarding job changes (e.g., seniority rules). Hence, compared to craft unions, industrial unions exercise a different and weaker kind of power. The power of industrial unions lies in acting as agents for collective bargaining, backed up by the threat of a strike. The success of such action depends upon the union representing (almost) all of the labor pool, both white and black.

Thus, it is not surprising that empirical investigations have generally found that while craft unionization has a negative effect on black-white wage ratios, industrial unionization appears to have had a positive impact (Ashenfelter, 1972; Leigh, 1978). This, in conjunction with the observation that most of the monopoly sector workers are members of industrial-type unions is inconsistent with a hypothesis that unionization is a factor in producing greater discrimination in the monopoly sector.

³On a conceptual level, this net association is viewed as being partly an effect of occupational skill requirements on unionization (e.g., the differential organization of workers in different occupations), partly an effect of unionization on occupational skill requirements (e.g., the influence of union rules and practices on hiring and promotion), and partly due to common causes not included in the model (e.g., an expected influence of economies of scale and capital intensity on both occupational skill requirements and unionization). To allow all of these effects would lead to an unidentified model. We could not arrive at a set of identifying assumptions that did not seem excessively arbitrary, and therefore we left this association unanalyzed.

⁴The variables included in K are: The year in which the interview took place (YR); the number of years of regular schooling completed (ED); the number of years of military experience (MILT); the number of years of civilian labor force experience (EXP) calculated as (Age-Ed-MILT-6) except that a respondent was not given credit for civilian labor force experience that occurred prior to the age of 12; the occupational status (measured by the Duncan SEI score) of the respondent's father (FAOCC); a dummy variable coded as 1 if the respondent resided on a farm at age 15 (FARM); a dummy variable coded as 1 if the respondent reported a health problem which limited his ability to work (HLTH); a dummy variable coded 1 if the respondent resided in the SOUTH; a dummy variable coded 1 if the respondent resided in an SMSA; and an indicator of the size of the local labor market for the respondent's area of residence (SIZELF).

⁵The conversion of GED and SVP to a years metric was done by Eckaus (1964).

⁶Type of union was based on a classification of the name of the union which was provided by the respondent. The "other" union category consisted of government employee and white collar unions and other miscellaneous and unclassifiable unions. A zero on all 3 variables indicates that the pay of the respondent was not covered by a collective bargaining agreement.

⁷Because of the unique nature of the labor market in the construction industry, workers in this industry were eliminated from the analysis. Agricultural workers were also eliminated because of the problems in getting an accurate assessment of their hourly earnings. Workers in two categories of nonprofit industries (welfare and religious services and nonprofit membership organizations) were also eliminated because of the extremely ambiguous position of these industries in relation to our sector distinctions. On the one hand, firms in these industries tend to be small, as are many competitive sector firms. However, these firms are not in competitive product markets in the normal sense of the term.

The only change I made in Hodson's scheme was due to the fact that I assigned individuals to the public sector according to the individual's class of worker code, whereas he assigned individuals to the state sector if they worked in an industry in which (1) most people worked for the government, or (2) most of the product was sold to the government. Thus, contrary to Hodson, non-government workers in 4 industries (ordnance manufacturing, electric light and power utilities, gas, steam and supply systems, and electric-gas utilities) were assigned to the monopoly sector instead of the state sector.

⁸These years were chosen because they were the only years in which all relevant information was asked. In addition to sample restrictions mentioned in the text, observations were eliminated if (a) they had hourly earnings (in 1976 dollars) of less than \$.50, (b) were in the agricultural, construction, welfare and religious, or nonprofit membership organization industries, or (c) had missing data on any of the following variables: occupation, industry, class of worker, education, or age. For missing data on other variables, observations were assigned a mean or modal value.

⁹It is straightforward to calculate the direct and indirect effect subcomponents of human capital (see Appendix A). When this was done, it turned out that the indirect effect subcomponents were very small and unimportant, and therefore, they were not reported. The occupational skill requirements component seems to be small because there is little in the way of sectoral differences in occupational skill requirements to be explained by human capital factors. The unionization subcomponent seems to be small because human capital factors do little in the way of explaining the sectoral differences in unionization.

¹⁰This paper does not examine the greater incidence of and payoff to "educational credentialism" in the monopoly sector that is indicated by the results of Beck, Horan, and Tolbert, and Hodson.

¹¹This approximation holds well for values less than .10. As values become increasingly larger these differences under-represent proportional differences by increasing amounts.

¹²One must consider the possibility that the greater pay in the monopoly sector is simply compensation for lower levels of other job rewards. However, the results of a regression analysis indicated that net of the human capital and location of residence factors the level of unemployment (as measured by the number of weeks unemployed during the past year) was slightly lower in the monopoly sector. Moreover, it is likely that the level of most fringe benefits is greater in the monopoly sector than in the competitive sector.

¹³This is based on a comparison of the reduced form effects (i.e., from equation 4) of education and father's occupation with the direct effects of these variables when GED and SVP are added to the equation for whites. In the competitive sector the effects of education and father's occupation are reduced by 35 and 29 percent, respectively. In the monopoly sector these reductions are 42 and 42 percent, respectively.

¹⁴The effect of raising the level of unionization in the competitive sector under these assumptions taken to their extreme (i.e., where point "a" corresponds to a value of 0 on each of the 4 unionization variables) is fairly easily quantified. It corresponds to the sum of a union composition component and a union rate component in our decomposition described in Appendix A. Equivalently, it corresponds to the sum of a union composition component, a union rate component, and a union interaction component in the type of decomposition outlined in Winsborough and Dickenson

(1969) and in Iams and Thornton (1975). In our model the sum of these components is $-.06$ implying that sector differences in unionization mitigate sector pay differentials, or alternatively, increasing the level of unionization in the competitive sector would increase the monopoly sector premium.

¹⁵In addition, preliminary analyses with the young men's sample of the National Longitudinal Surveys have yielded results very similar to those reported in this paper.

¹⁶A logit analysis was used to estimate a model expressing sector location (either competitive or monopoly sector) as a function of race and the human capital and location of residence factors. The coefficient for the race term was trivial and statistically insignificant.

APPENDIX A

Decomposition of Sector Pay Differences

This Appendix describes the decomposition of sector differences in mean log hourly earnings. In the section on analytical strategy in the text we identified three composition components and a residual. Actually, sector pay differences were decomposed into three composition components, two rate components, and a residual component (see below). The residual component could also be interpreted as a (human capital) rate component. However, since the rate components were seldom directly relevant to substantive issues, they were not presented separately in the text. The residual in the text is the sum of the two rate components and the residual component described in this Appendix.

In the first decomposition (i.e., the one presented in the left-hand column under each sector difference) I use the variable means for the first sector (denoted by a prime) and the coefficients for the second sector (denoted by the lack of a prime). The notation associated with equations 1-4 in the text is used. Thus, the sector difference $(\bar{Y}' - \bar{Y})$ can be partitioned into the following components:

$$(A) \sum_i t_i [\bar{K}'_i - \bar{K}_i]$$

Human Capital Composition
Component

$$(B) \sum_j c_j [e'_j - e_j] + \sum_j \sum_i c_j [f'_{ji} - f_{ji}] \bar{K}'_i$$

Occupational Skill Requirements
Composition Component

$$(C) \sum_k d_k [g'_k - g_k] + \sum_k \sum_i d_k [h'_{ki} - h_{ki}] \bar{K}'_i$$

Union Composition Component

$$(D) \sum_j [c'_j - c_j] \bar{S}'_j$$

Differential Payoff to Occu-
pational Skill Requirements
Component

$$(E) \sum_k [d'_k - d_k] \bar{U}'_k \quad \text{Differential Payoff to Unionization Component}$$

$$(F) [a' - a] + \sum_i [b'_i - b_i] \bar{K}'_i \quad \text{(Residual) Sector Premium*}$$

*The residual in the text is the sum of components D, E, and F.

A couple of comments about this decomposition may be in order. First, interpreting the sum of D, E, and F as a residual sector premium is reasonable since it represents differences in the way that human capital and location of residence factors, occupational skill requirements, and unionization are rewarded in different sectors. Second, this decomposition is based on the block recursive model of equations 1-4, not a single equation. In particular, that part of sector pay differentials produced by differences in occupational skill requirement(S) or unionization (U) which was in turn produced by differences in human capital (K) was included in the human capital composition component. Third, in this decomposition, the "interaction components" (Winsborough and Dickenson, 1969; Iams and Thornton, 1975) are included in the rate (and residual) components. In the second decomposition (i.e., the one presented in the right hand column under each sector difference in Table 3), the interaction components are included in the composition components.

It may be useful to show that the components A through F actually sum to $(\bar{Y}' - \bar{Y})$. By substituting for S and U in equation 1 (in the text), it can be shown that,

$$t_i = b_i + \sum_j c_j f_{ji} + \sum_k d_k h_{ki}$$

Then substitute for t_i in component (A) to obtain,

$$(A) = (A.1) + (A.2) + (A.3)$$

where,

$$(A.1) = \sum_i b_i [\bar{K}_i' - \bar{K}_i]$$

$$(A.2) = \sum_j \sum_i c_j f_{ji} [\bar{K}_i' - \bar{K}_i]$$

$$(A.3) = \sum_k \sum_i d_k h_{ki} [\bar{K}_i' - \bar{K}_i].$$

Here, A.1 represents the direct effect subcomponent of human capital, A.2 represents the indirect effect subcomponent of human capital through occupational skill requirements, and A.3 represents the indirect effect subcomponent of human capital through unionization. It is also useful to distinguish between the first and second terms in (B), (C), and (F).

Noting that, for example,

$$\begin{aligned} (A.2) + (B.1) + (B.2) &= \sum_j \sum_i c_j f_{ji} [\bar{K}_i' - \bar{K}_i] + \sum_j c_j [e_j' - e_j] + \sum_j \sum_i c_j [f_{ji}' - f_{ji}] \bar{K}_i' \\ &= \sum_j c_j [(e_j' - e_j) + \sum_i [f_{ji} (\bar{K}_i' - \bar{K}_i) + (f_{ji}' - f_{ji}) \bar{K}_i']] \\ &= \sum_j c_j [(e_j' + \sum_i f_{ji}' \bar{K}_i') - (e_j + \sum_i f_{ji} \bar{K}_i)] \\ &= \sum_j c_j (\bar{S}_j' - \bar{S}_j), \end{aligned}$$

we can rearrange the terms of our decomposition as follows:

$$\begin{aligned} (F.1) + (A.1) + (F.2) + [(A.2) + (B.1) + (B.2)] + (D) + [(A.3) + (C.1) + (C.2)] + (E) \\ = (a' - a) + \sum_i b_i (\bar{K}_i' - \bar{K}_i) + \sum_i (b_i' - b_i) \bar{K}_i' \\ + \sum_j c_j (\bar{S}_j' - \bar{S}_j) + \sum_j (c_j' - c_j) \bar{S}_j' \\ + \sum_k d_k (\bar{U}_k' - \bar{U}_k) + \sum_k (d_k' - d_k) \bar{U}_k' \\ = (a' + \sum_i b_i' \bar{K}_i' + \sum_j c_j' \bar{S}_j' + \sum_k d_k' \bar{U}_k') - \\ (a + \sum_i b_i \bar{K}_i + \sum_j c_j \bar{S}_j + \sum_k d_k \bar{U}_k) \\ = \bar{Y}' - \bar{Y} \end{aligned}$$

APPENDIX B

Sector Classification of Industries

Industry Group	Sector
Mining	
Metal mining	MON
Coal mining	MON
Crude petroleum and natural gas	MON
Nonmetallic mining and quarrying	COMP
Durable Manufacturing	
Lumber and wood products	COMP
Furniture and Fixtures	COMP
Stone, clay, and glass products	MON
Metal industries	MON
Machinery, except electrical	MON
Electrical machinery, equipment, supplies	MON
Transportation equipment	MON
Professional and photographic equipment	MON
Ordnance	MON
Miscellaneous durable manufacturing	MON
Nondurable Manufacturing	
Food and kindred products	MON
Tobacco manufacturers	MON
Textile mill products	COMP
Apparel and other fabricated textiles	COMP
Paper and allied products	MON
Printing, publishing and allied industries	COMP
Chemicals and allied products	MON
Petroleum and coal products	MON
Rubber and miscellaneous plastic products	MON
Leather and leather products	COMP
Not specified nondurable manufacturing	COMP
Transportation	
Railroads and railway express service	MON
Street railways and bus lines	COMP
Taxicab service	COMP
Trucking service	COMP
Warehousing and storage	COMP
Water transportation	COMP
Air transportation	MON
Petroleum and gasoline pipelines	COMP
Services incidental to transportation	COMP

Industry Group	Sector
Communications	
Radio broadcasting and television	COMP
Telephone (wire and radio)	MON
Telegraph (wire and radio)	MON
Utilities and sanitary services	
Electric light and power	MON
Gas, steam and supply systems	MON
Electric-gas utilities	MON
Water supply	COMP
Sanitation services	COMP
Other not specified utilities	COMP
Wholesale trade	COMP
Retail trade	COMP
Finance, insurance, and real estate	MON
Business and repair services	COMP
Personal services	COMP
Entertainment and recreation services	COMP
Professional and related services,	COMP

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The Center for Human Resource Research

The Center for Human Resource Research is a policy-oriented research unit based in the College of Administrative Science of The Ohio State University. Established in 1965, the Center is concerned with a wide range of contemporary problems associated with human resource development, conservation and utilization. The personnel include approximately twenty senior staff members drawn from the disciplines of economics, education, health sciences, industrial relations, management science, psychology, public administration, social work and sociology. This multidisciplinary team is supported by approximately 50 graduate research associates, full-time research assistants, computer programmers and other personnel.

The Center has acquired pre-eminence in the fields of labor market research and manpower planning. The National Longitudinal Surveys of Labor Force Behavior have been the responsibility of the Center since 1965 under continuing support from the United States Department of Labor. Staff have been called upon for human resource planning assistance throughout the world with major studies conducted in Bolivia, Ecuador and Venezuela, and recently the National Science Foundation requested a review of the state of the art in human resource planning. Senior personnel are also engaged in several other areas of research including collective bargaining and labor relations, evaluation and monitoring of the operation of government employment and training programs and the projection of health education and facility needs.

The Center for Human Resource Research has received over one million dollars annually from government agencies and private foundations to support its research in recent years. Providing support have been the U.S. Departments of Labor, State, and Health, Education and Welfare; Ohio's Health and Education Departments and Bureau of Employment Services; the Ohio cities of Columbus and Springfield; the Ohio AFL-CIO; and the George Gund Foundation. The breadth of research interests may be seen by examining a few of the present projects.

The largest of the current projects is the National Longitudinal Surveys of Labor Force Behavior. This project involves repeated interviews over a fifteen year period with four groups of the United State population; older men, middle-aged women, and young men and women. The data are collected for 20,000 individuals by the U.S. Bureau of the Census, and the Center is responsible for data analysis. To date dozens of research monographs and special reports have been prepared by the staff. Responsibilities also include the preparation and distribution of data tapes for public use. Beginning in 1979, an additional cohort of 12,000 young men and women between the ages of 14 and 21 will be studied on an annual basis for the following five years. Again the Center will provide analysis and public use tapes for this cohort.

The Quality of Working Life Project is another ongoing study operated in conjunction with the cities of Springfield and Columbus, in an attempt to improve both the productivity and the meaningfulness of work for public employees in these two municipalities. Center staff serve as third party advisors, as well as researchers, to explore new techniques for attaining management-worker cooperation.

(continued on inside of back cover)

A third area of research in which the Center has been active is manpower planning both in the U.S. and in developing countries. A current project for the Ohio Advisory Council for Vocational Education seeks to identify and inventory the highly fragmented institutions and agencies responsible for supplying vocational and technical training in Ohio. These data will subsequently be integrated into a comprehensive model for forecasting the State's supply of vocational and technical skills.

Another focus of research is collective bargaining. In a project for the U.S. Department of Labor, staff members are evaluating several current experiments for "expedited grievance procedures," working with unions and management in a variety of industries. The procedural adequacies, safeguards for due process, cost and timing of the new procedure are being weighed against traditional arbitration techniques.

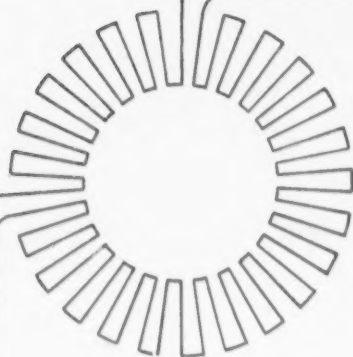
Senior staff also serve as consultants to many boards and commissions at the national and state level. Recent papers have been written for the Joint Economic Committee of Congress, The National Commission for Employment and Unemployment Statistics, The National Commission for Manpower Policy, The White House Conference on the Family, the Ohio Board of Regents, the Ohio Governor's Task Force on Health, and the Ohio Governor's Task Force on Welfare.

The Center maintains a working library of approximately 9,000 titles which includes a wide range of reference works and current periodicals. Also provided are computer facilities linked with those of the University and staffed by approximately a dozen computer programmers. They serve the needs of in-house researchers and users of the National Longitudinal Survey tapes.

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Center for Human Resource Research

SEX-ROLE ATTITUDES AND EMPLOYMENT AMONG WOMEN:
A DYNAMIC MODEL OF CHANGE AND CONTINUITY

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SEX-ROLE ATTITUDES AND EMPLOYMENT AMONG WOMEN:

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ABSTRACT

Female labor force trends are now important considerations in the formulation of government employment programs and labor force projections. However, in both of these areas little attention has been directed at the impact of changing sex-role attitudes on women's labor market behavior. In addition, while cross-sectional studies demonstrate a persistent correlation between sex-role attitudes and employment, the temporal interplay between changing attitudes and employment behavior has not been explored. This study utilizes data from the National Longitudinal Surveys of Labor Market Experience of Young and Mature Women to examine the short-run effects of nontraditional sex-role ideologies on wives' employment and the consequences of such employment for further changes in sex-role attitudes.

Our analyses demonstrate a small but significant effect of nontraditional attitudes on white wives' extent of employment experience and a substantially larger effect of market participation on later attitudes. However, due to subcultural differences, nontraditionality has no impact on the employment of black married women and employment has little effect on their subsequent attitudes. Based on these findings we conclude that among white wives, early nontraditional attitudes trigger a spiraling pattern whereby such attitudes influence labor force behavior which has longer-run effects on subsequent attitudes and labor market participation.

We conclude our discussion by considering the implications of these findings for both short-run and longer-run government employment programs and the development of more refined female labor force projections.

SEX-ROLE ATTITUDES AND EMPLOYMENT AMONG WOMEN:
A DYNAMIC MODEL OF CHANGE AND CONTINUITY

BACKGROUND

Studies of female labor market patterns have long claimed an important place in descriptions of the changing U.S. labor force and in more general sociological and economic research. Recently these trends have also emerged as considerations in the development of government employment policy. Specifically, current discussions of programs designed to reduce unemployment acknowledge the importance of women's increasing presence in the labor force for the formulation of job programs (Shabekoff, 1977). Furthermore, the potential impact of changes in women's work patterns is not limited to short-run employment programs. Labor force projections by the U.S. Department of Labor (1976) and others (Waite, 1977) also recognize that work propensities of women of all ages and family stages have increased dramatically since World War II (Oppenheimer, 1970; Nye, 1974), and these trends form the basis of predicted labor force figures. As these projections have become increasingly sophisticated, some labor force analyses (U.S. Department of Labor, 1976) have gone beyond extrapolation from previous employment trends and have incorporated various assumptions concerning the future course of U.S. fertility. However, other potentially important changes in women's lives have been given relatively little attention in the development of employment policy and labor force projections. Most important among them is the well-documented change in women's sex-role attitudes over the last decade (Parelius, 1975; Mason et al., 1976).¹

¹To our knowledge, only one very recent set of U.S. female labor force projections includes extrapolations from data on women's employment-related attitudes (Waite, 1977).

Increasing employment rates, especially among mothers of young children (Nye, 1974), certainly represent a departure from model twentieth century patterns of family life, one that may reflect changing attitudes (Dowdall, 1974; Waite and Stolzenberg, 1976; Kim et al., 1973). Thus, the potential impact of sex-role attitudes on female labor force participation is a crucial issue both for the development of government policy aimed at accomodating women's increasing desire for employment and for the estimation of more accurate labor force projections.

While some earlier researchers dismissed the need to incorporate attitudes in explanations of changing female labor force behavior (Bowen and Finegan, 1969), there is now substantial evidence that sex-role attitudes -- particularly attitudes towards women's employment -- and actual labor force behavior are linked. Experience with market work shapes women's tastes for alternatives to familial roles (Turchi, 1975; Scanzoni, 1975); consequently, such experience should produce more favorable attitudes toward nontraditional life-styles. Conversely, women with nontraditional orientations are more likely to anticipate future roles that include employment (Waite and Stolzenberg, 1976), to be employed, and to exhibit greater continuity of labor force participation (Kim et al., 1973; Spitze and Spaeth, 1976). These effects of attitudes on labor force behavior hold despite the fact that most young women still intend to withdraw from employment while their children are young (Macke and Morgan, 1978), a pattern followed by the majority of married women (Sweet, 1973; Suter and Miller, 1973).

Despite evidence of the correlation between nontraditional attitudes and greater employment propensities, the predominantly cross-sectional

nature of this research has produced little understanding of the over-time dynamics of these relationships. Even those studies based on longitudinal data (Spitze and Spaeth, 1976; Waite, 1977) have not considered the potential temporal feedbacks between sex-role attitudes and labor force behavior. Our view is that prior attitudes affect subsequent employment and that work experience shapes later sex-role attitudes. Consequently, early nontraditional sex-role ideologies may operate to trigger a spiraling pattern, whereby such attitudes influence early labor force behavior (as well as associated marital and childbearing decisions) which in turn further alters later attitudes and behavior. This feedback relationship may exist not only early in life, but may continue to affect women's employment decisions throughout their labor force careers. Consequently, even a relatively small short-run effect of early attitudes on labor force participation may be magnified through a long-term pattern of attitudinal changes inducing a greater desire for market work.² Under these conditions, the accelerating attitude shifts observed by Mason et al. (1976) may be partly a function of increased propensities toward working over the past decade. From the perspective of policy development, evidence supporting a spiraling effect of sex-role attitudes on labor market behavior would suggest the importance of incorporating attitudinal measures in the formulation and implementation of employment programs and the refinement of labor force projections. A

²Even given such a feedback relationship between attitudes and employment propensities, there is a likely ceiling on women's employment rates resulting from childbearing, less than optimal childcare arrangements, and the low wages some categories of women face that fail to compensate for the costs of childcare.

further implication of such findings would be the need to modify labor force projections for adolescents, socialized under conditions of changing sex-role norms, to include effects of unexpectedly large temporal shifts in employment-related attitudes.

Although younger women are most likely to support nontraditional life-styles (Parelius, 1975; Welch, 1975), accurate forecasts of the impact of sex-role norms on work participation must consider older women as well. These women also have shifted their attitudes (Mason et al., 1976) and so may be responding similarly to their ideologies concerning women's employment. In addition, given their relative freedom from childbearing responsibilities, they may be even more likely than younger women to display labor force patterns that conform to their sex-role beliefs. If so, participation rates may increase more rapidly than anticipated as successive-ly less traditional women enter their middle years and experience an accelerated impact of attitudes on employment.

MODEL

Based on these observations, the analyses presented below test the hypothesis that prior sex-role attitudes influence subsequent labor force behavior which, in turn, affects later sex-role attitudes. This argument is presented schematically in Figure 1. In this model, the dashed arrows represent controls for the temporal consistency of attitudes and employment, which might produce inflated estimates for the effects of substantive interest (Bohrnstedt, 1969).

We examine this series of relationships separately for younger and older women. By exploring possible differences in processes for various

segments of the female population, we can more readily anticipate work patterns at different stages of the life cycle, suggesting at least short-run policy applications for the two groups (i.e., Are younger or older women more likely to experience rapidly increasing labor force entry? Should current labor force projections incorporate attitudinal measures only for one or the other of these two categories of women?).

Racial Differences

Blacks have long espoused a more work-oriented, instrumental role for wives (Axelson, 1970; Dietrich, 1975; Scanzoni, 1975). In addition, the lower current and permanent income of black husbands (Sweet, 1973) and the greater probabilities of future marital disruption for black couples (Udry, 1966) more often necessitate wives' employment. Consequently, the propriety of wives' (or mothers') employment is often irrelevant to employment decisions (Farley and Hermalin, 1972; Hudis, 1977), even for those blacks who strongly disapprove of maternal employment. The subcultural experiences should increase employment rates among black wives, irrespective of their present economic situations or sex-role traditionality. Thus, the relationships described above between working and nontraditionality probably more accurately reflect patterns among whites than blacks, particularly for the impact of employment-related attitudes on the propensity to work. Therefore, we will examine these issues separately for black and white women.

DATA AND METHODS

Sample

The data are from the two cohorts of female respondents included in the National Longitudinal Surveys (NLS). The survey responses we use were collected for the younger women (aged 14 to 24 in 1968) in 1968, 1969, 1970, 1971, and 1972, and for the older women (aged 30 to 44 in 1967) in 1967, 1968, 1969, 1971, and 1972.

We did not include all available cases in our analyses for the following reasons. The impact of sex-role traditionality is relevant only for married women, because unmarried women often have little choice but to work, regardless of their attitudes. In addition, given the emphasis on fertility patterns in projections of the female labor force (U.S. Department of Labor, 1976), as well as prior evidence concerning the influence on employment of husband's attitudes (Centers et al., 1971; Duncan et al., 1973), we wish to examine the relative importance of wives' sex-role attitudes, the attitudes of their husbands, and presence of children as determinants of women's labor force behavior. Thus, our analysis is restricted to those women from each cohort who were married throughout the time period observed (1967 to 1972 for older women and 1968 to 1972 for younger women).³ Also, we included only those younger women who were at least 18 years of age in 1968. Based on these selection criteria, the younger sample used for our analysis includes 116 blacks and 630 whites, while there are 482 blacks and 2280 whites in the older sample.

³We also excluded from the sample women who changed their marital status between the initial and final survey dates because of the effects of such status changes on employment probabilities.

Variables

The measure of sex-role nontraditionality in 1972, our most complex variable, is a scale produced by summing responses to seven items.⁴

Inclusion of items was based on an oblique factor analysis of nine possible items, which produced significant loadings according to Child's (1971) rule of thumb for the items included. For all attitude measures, items were recoded so that high values represent nontraditional responses.

The measure of initial sex-role nontraditionality for the older women (1967) and the younger women (1968) is simply a summation of three items.⁵

⁴Response categories ranging from strongly agree to strongly disagree were provided for the following statements:

- (1) Modern conveniences permit a wife to work without neglecting her family.
- (2) A woman's place is in the home, not in the office or shop.
- (3) A job provides a wife with interesting outside contacts.
- (4) A wife who carries out her full family responsibilities doesn't have time for outside employment.
- (5) The employment of wives leads to more juvenile delinquency.
- (6) Working wives help to raise the general standard of living.
- (7) Working wives lose interest in their homes and families.

Reliabilities (Cronbach's alpha) for this scale are: whites--.858; blacks--.647.

⁵The initial sex-role traditionality scale for both cohorts contained the following stem and statements: "Now, I'd like your opinion about women working. People have different ideas about whether married women should work. Here are three statements about a married woman with children between the ages of 6 and 12. In each case how do you feel about such a woman taking a full-time job outside the home: it is definitely all right, probably all right, probably not all right, definitely not all right?"

- (1) if it is absolutely necessary to make ends meet
- (2) if she wants to work and her husband agrees
- (3) if she wants to work, even if her husband does not particularly like the idea

Respondents who were undecided were given a median score of "3" on each item. Reliabilities (Cronbach's alpha) for this scale are: whites--.535; blacks--.545.

To include the maximum number of respondents, missing responses to all sex-role items were recoded to the mean for all cases before summing. We expect bias in this regard to be minimal because relatively small proportions of the cases were missing on any one item (see Kmenta, 1971, for a discussion).

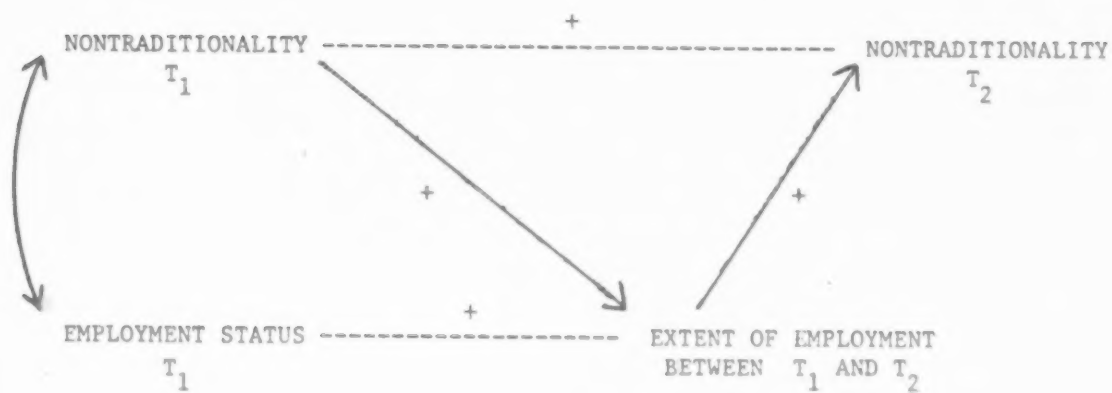
Because the initial three-item measure of traditionality was also available in 1972, we could have used identical measures for earlier and later years. However, we employed the alternative scale (not available for the earlier year) because it is a theoretically more adequate measure of nontraditionality.⁶ Furthermore, in order to obtain accurate estimates of the impact of work experience on later attitudes (see Figure 1), we must control for the effects of previous attitudes. By using the same (less desirable) indicator of attitudes, measurement error would increase the likelihood of correlated errors between the two measures of traditionality, biasing all of the other estimates.

Extent of employment varies from "0" to "3," depending on how many of the relevant years a respondent was in the labor force. For the older women these years were 1968, 1970, and 1971; for the younger women they were 1969, 1970, and 1971.

Control variables To assess the impact of initial nontraditionality on extent of employment, we must control for the over-time consistency of labor force participation, which is related to traditionality and, consequently, may produce a spuriously high correlation. Thus, our model

⁶ In an analysis (not reported here) using the three-item scale for 1972 nontraditionality, the direct effects of substantive interest were substantially similar to those reported for the seven-item scale.

FIGURE 1. OVER-TIME RELATIONSHIP BETWEEN SEX-ROLE ATTITUDES (NONTRADITIONABILITY) AND EMPLOYMENT BEHAVIOR.



controls for the effects of participation in the initial year (1967 for the older women, 1968 for the younger women). For both groups, initial employment is measured by a dummy variable scored "1" if the woman was in the labor force and "0" if she was not.

We also control for other variables related to both attitudes and employment that may produce spurious relationships. The inclusion of such additional controls is especially warranted because, when controlling for the consistency of attitudes and employment, by including the impact of previous measures on later measures, the possibility of correlated errors is especially likely (Hannan and Young, 1977). Thus, the model to be estimated must include those variables that might produce spuriously high consistency coefficients between the repeated measures. The following are additional controls included in the analyses.

The woman's perception of her husband's attitude toward her working (if she is employed) or toward her starting work (if she is not currently employed) is measured by a single item to which five answer choices were provided. They range from strongly supportive to strongly opposed. For both cohorts these items were measured in the initial year. We justify including husband's attitude as a control variable on two grounds. First, some earlier research based on the NLS data (Kim and Murphy, 1973) indicates a significant effect of husband's attitude for the labor force behavior of white wives. Second, the modified cross-lagged model used in this study, which includes controls for wife's initial employment, eliminates the problem of ambiguous causal inferences identified by some analysts (Waite, 1977).

Husband's income represents the effects of other available family income on wife's employment behavior. Consequently, this variable measures economic need as an influence on the extent of wife's work. Number of children in the household was measured differently for the two cohorts. The number of children at home in 1967 was used for the older women, because women in this cohort had largely completed their childbearing at the start of the surveys (1967). In contrast, many of the younger women were at or approaching the childbearing stage of the life cycle. Therefore, we controlled for number of children in 1968 when estimating effects on extent of employment between 1969 and 1971, but used number of children at home in 1972 as a control when estimating sex-role traditionality in 1972.

A woman's work preparation is another important determinant of both employment behavior and sex-role attitudes. Such preparation taps both human capital influences on employment probabilities and variation in tastes for market work (Bowen and Finegan, 1969). Education is the number of years of regular schooling completed at the start of the surveys. Job training ranges from "0" to "5," depending on how many of several varieties of training (including types of on-the-job, vocational, and company) a woman received. Although it would have been preferable to measure the extent of each training type, we were unable to do so because of a lack of consistency in the coding of these variables. Socialization experiences, such as mother's work history, may also affect a woman's work behavior (Almquist and Angrist, 1970). This measure is a dummy variable, scored "1" if the woman's mother was employed when the daughter was 15

years old, and "0" if she was not. Age is included as a control for younger women, due to its potential effects on employment probabilities. The unemployment rate and demand for female labor in the local labor market were controlled in initial analyses. However, because they failed to demonstrate significant effects for either cohort, they were deleted from the equations presented below.

Procedures

All analyses use standard ordinary least-squares regression techniques. Our strategy was to estimate the impact of initial (1967 or 1968) attitudes on extent of employment in the following interval, controlling for work status in the initial year and all other independent variables. We then estimated the effects of extent of employment on 1972 attitudes, controlling for initial attitudes and work status in addition to the other controls. This model is similar to the cross-lagged approach (see Heiss, 1970; Snyder and Hudis, 1976), where stability coefficients (i.e., the effect of X_{t_1} on X_{t_2}) are estimated in addition to the cross-lagged coefficients (i.e., the effect of X_{t_1} on Y_{t_2}). However we are not substantively interested in the stability coefficients and, instead, are more concerned with controlling these consistency effects when estimating the cross-lagged coefficients of direct concern.

FINDINGS

The means and standard deviations presented in Table 1 demonstrate a number of anticipated differences between black and white women and at the two life-cycle states. First, black women are more nontraditional (as are

TABLE 1. MEANS AND STANDARD DEVIATIONS OF VARIABLES IN ANALYSES OF SEX-ROLE NONTRADITIONALITY AND EXTENT OF EMPLOYMENT, BY COHORT AND RACE.

Variable	Older Women				Younger Women			
	Whites		Blacks		Whites		Blacks	
	Mean	s.d.	Mean	s.d.	Mean	s.d.	Mean	s.d.
Initial work status	.431	.495	.643	.480	.475	.500	.509	.502
Extent of employment	1.397	1.297	1.896	1.216	1.224	1.210	1.629	1.198
Initial sex-role nontraditionality	9.898	2.458	10.714	2.492	9.605	2.526	10.612	2.308
1972 Sex-role nontraditionality	16.969	4.898	17.071	4.054	17.053	4.141	18.144	3.928
Husband's attitude	2.956	1.582	3.805	1.447	2.702	1.012	3.701	1.296
Husband's income	8250	5758	4933	3302	5350	2862	3518	2054
Number of children - 1967	2.729	1.711	3.537	2.635				
Number of children - 1968					1.003	.963	1.638	1.264
Number of children - 1972					1.978	1.012	2.785	1.597
Education	11.859	2.315	10.390	3.031	11.778	1.854	10.176	2.122
Job training	1.324	.977	.614	.884	.475	.726	.457	.774
Mother's work history	.314	.464	.566	.496	.351	.478	.560	1.809
Age					21.822	1.805	21.302	1.809
N	2280		482		630		116	

their husbands); they are also more likely than white women to work and they more frequently had working mothers. Black women have lower levels of educational attainment, larger numbers of children and husbands with lower incomes. These differences support racial variations observed in a variety of previous studies (Farley and Hermalin, 1972; Sweet, 1973; Hudis, 1977).

Differences between the two cohorts of women with respect to their own and their husbands' attitudes are extremely small, although in the initial year an unexpected tendency exists for older women and their husbands to be less traditional than their younger counterparts. However, there is a tendency for younger women to be less traditional in 1972, a pattern of differences that conforms with previous research (Parelius, 1975; Welch, 1975). Other expected differences between the two cohorts exist; older women have husbands with higher incomes, and they also have larger numbers of children (due to both their older age and secular fertility trends), and a greater variety of job-training experiences.

In testing the model depicted in Figure 1, we are especially interested in the effects of initial nontraditionality on subsequent continuity of employment and such employment experience on 1972 nontraditionality. The results for the younger women presented in Table 2 support our expectation of temporal feedbacks, but only for whites.

For whites, nontraditionality increases labor force participation, and this work experience enhances nontraditional attitudes at a later point.⁷

⁷The strong effect of extent of employment on 1972 attitudes remained even when work status in 1972 (in or out of the labor force) was controlled (for both younger and older women).

TABLE 2. EQUATIONS PREDICTING EXTENT OF EMPLOYMENT, 1969-1971 AND SEX-ROLE NONTRADITIONALITY, 1972, BY RACE FOR YOUNGER WOMEN.

Dependent Variable:	Whites		Blacks	
Independent Variable	Extent of Employment 1969-1971	Nontraditionality 1972	Extent of Employment 1969-1971	Nontraditionality 1972
	b	Beta	b	Beta
Work status, 1968	.788 ^a	.325	.920 ^a	-.143
Nontraditionality, 1968	.029 ^a	.061	-.011	.191
Extent of employment, '69-'71				.189
Husband's attitude	.152 ^a	.190	.054	.238
Husband's income ^b	-.003 ^a	-.067	-.006	.007
Number of children	-.080	-.063	-.186 ^a	-.068
Education	.007	.010	.054	.089
Job training	.202 ^a	.121	.236 ^a	.157
Mother's work history	-.065	-.026	-.075	-.031
Age	-.012	-.018	.117 ^a	.177
R ²	.294	.151	.284	.082
N	630		116	

^aCoefficient at least twice its standard error.

^bMeasured in hundreds of dollars.

However, while statistically significant, the effect of young women's own attitudes on labor market behavior is relatively small and far less important than the impact of their husbands' attitudes. While initial attitudes do shape employment behavior to some degree, prior labor force experience appears to be a more salient influence among young white women.⁸ For both black and white women, the effect of initial work status on extent of employment indicates that those who worked in the past are very likely to work in the present, regardless of their attitudes. These findings for young white females suggest the spiraling effect of nontraditional attitudes and employment behavior discussed earlier despite the observation that, over the short run, attitudes have only a moderate effect on immediate work continuity. In contrast, early work participation operates to establish a pattern of continued employment for young black females irrespective of their attitudes toward the acceptability of working.

Control variables included in the analyses have scattered effects on the two dependent variables for the two racial groups. First, as anticipated, husbands' attitudes are a salient influence on the employment behavior of young white women, while these attitudes have little effect for blacks. This difference supports earlier arguments that subcultural differences mandate employment for most black women regardless of familial circumstances that often curtail employment for whites. Second, the effects of education

⁸ This relatively weak effect of attitudes on employment remained even when the analysis included only married women with children, supposedly those facing the severest family pressures (and, perhaps, more susceptible to variations in attitudes).

and job training are stronger for blacks, paralleling previous findings for earnings attainment (Treiman and Terrell, 1975; Hudis, 1977) and suggesting that the familial and economic uncertainties black women face lead them to greater utilization of their training than is the case among white women. Finally, the impact of children in the household has a negative effect on employment only among blacks. This finding is contrary to earlier observations (Sweet, 1973) that white women's employment behavior is more strongly influenced by the constraints of childrearing and other family responsibilities. These surprising results may be due to the more rapid family formation (and ultimately larger family size) of black women (see Table 1), increasing the variation, and so the impact, of number of children in 1968.

The results for older women in Table 3 indicate a pattern largely similar to that for the younger cohort. Attitudes have a significant but relatively weak effect on short-run employment (for whites only), and work experience further increases levels of nontraditionality, this time for both racial groups. Again, husbands' attitudes have a more powerful influence on the employment behavior of wives than does a woman's own orientation -- for both black and white women -- although the relative importance of husband's attitudes (compared to one's own) is less for older than younger females.

A comparison across cohorts of the unstandardized regression coefficients shows greater consistency in work behavior for the older women, probably the result of reduced childrearing pressures and other work interruptions. Sex-role attitudes are also more consistent over time, although a significant stability effect exists only for whites. The control

TABLE 3. EQUATIONS PREDICTING EXTENT OF EMPLOYMENT, 1968-1971 AND SEX-ROLE NONTRADITIONALITY, 1972, BY RACE FOR OLDER WOMEN.

Dependent Variables:	Whites			Blacks		
	Extent of Employment 1968-1971		Nonradi- tionality 1972	Extent of Employment 1968-1971		Nonradi- tionality 1972
	b	Beta		b	Beta	
Independent Variables						
Work status, 1967	1.611 ^a	.615	-.144	1.356 ^a	.535	.487
Nontraditionality, 1967	.029 ^a	.054	.513 ^a	.002	.004	.048
Extent of employment, '68-'71			1.172 ^a			.954 ^a
Husband's attitude	.090 ^a	.110	.036	.068 ^a	.081	-.171
Husband's income ^b	-.006 ^a	.072	.003	.000	.010	-.002
Number of children	-.017	-.023	-.074	-.018	-.039	-.035
Education	.032 ^a	.056	.237 ^a	.065 ^a	.162	.073
Job training	.030	.023	.263 ^a	.063	.046	.415 ^a
Mother's work history	.043	.015	.027	.098	.040	.006
R ²	.532		.241	.397		.140
N	2280			482		

^aCoefficient at least twice its standard error.

^bMeasured in hundreds of dollars.

variables have scattered effects for both racial groups. Two of these effects are of particular interest. Husband's income negatively influences extent of employment only among whites, continuing a pattern observed for the younger women. In addition, children in the household have little influence on continuity of employment for either group of older women, reflecting the completion of childbearing and reduction in childcare responsibilities for black women in this cohort (children were a salient influence for younger black wives but not for their white counterparts).

DISCUSSION

These findings have important implications for projections of women's labor force participation rates, including the relevance of changing sex-role attitudes concerning women's desire for employment. Our analyses suggest that among white women, at both early and later stages of the life cycle, labor force participation will continue its upward spiral. Non-traditional attitudes toward women's work increase the extent of work participation, and the experience of labor force involvement further increases a woman's nontraditionality. Consequently, we conclude that changing sex-role norms contributed to the growth in women's labor force participation over this period, subsequently increasing levels of non-traditionality.

Based on our model we can also make the assumption that sex-role attitudes in 1972 (which were less traditional than those in the earlier period) increased the likelihood and extent of employment for younger and older white wives. Extrapolating from the observed cyclical process, increases in labor market work among white wives should continue in future

years. Furthermore, if nontraditionality increased more rapidly subsequent to 1972 than during the previous period (as suggested by Mason et al., 1976), the resulting growth in desire for employment also would have accelerated. While the impact of attitudes on employment -- in the short run -- is relatively weak, the size of this effect must be assessed in its longer-run context. Given the increasing tendency for women to perceive all dimensions of traditionality as related (Mason, et al., 1976), they are more likely to demonstrate behavior that conforms to their attitudes in a variety of life situations. Consequently, the longer-run influence of employment-related attitudes may have an even more profound impact on white women's labor force patterns than our model for the early 1970s suggests.

Our analyses indicate continued racial differences in the process determining female employment, despite the gains young blacks have made in employment opportunities and income (Farley and Hermalin, 1972). These findings support earlier arguments concerning subcultural differences in the appropriateness of working for black and white married women. Thus, accurate labor force projections will require separate estimations by race. According to our findings, the employment behavior of blacks will not be affected by recent attitudinal changes.

One impressive racial similarity exists: the striking stability of work behavior. This influence of earlier participation on later extent of employment has been recognized in previous studies (Mott, 1972; Sweet and Lowe, 1974) and should be emphasized in the context of currently low fertility rates and particularly in the context of recent evidence of delayed childbearing among women now entering their thirties. It has long

been argued that employment and childbearing have reciprocal negative effects on one another. To the extent that employment experience (with its attendant human capital accumulation) raises the opportunity costs of children, work experience reduces family size. In addition, early childbearing produces conflicts between work and family responsibilities that are most often resolved in favor of family-related commitments (Coser and Rikoff, 1971). Early family formation also limits young women's opportunities to develop tastes for alternative lifestyles. However, among young women maturing under conditions of changing sex0role norms, marriage and/or childbearing may be delayed, thereby increasing opportunities for work experience and the growth of preferences for roles that include relatively continuous employment. As a result, the higher levels of early labor force participation among today's young women may drastically alter their continued desire for employment later in life. When coupled with the exceptionally low fertility of these young women, their desire for work during their middle years may hardly resemble levels currently displayed by women past childbearing age.

Several additional observations from our analyses also require discussion. First, previous studies demonstrate the difficulties involved in determining the direction of causal influence between a husband's attitudes toward his wife's employment and the extent of the wife's work (Waite, 1977). Through the use of the NLS data and a modified cross-lagged research design, we have shown that wives' perceptions of their husbands' attitudes do influence future employment among white women in both cohorts and among older black females. Among whites, this largely

unexplored determinant of working has an even stronger impact than the woman's own sex-role orientation. Thus, to anticipate adequately changes in female labor force participation, attitudes and attitude change among men must be examined.

We did not observe that older women's employment patterns were more strongly influenced by their attitudes than among young women. Consequently, labor force participation rates among this cohort of older women should not increase disjunctively because of an increased impact of attitudes on desired employment. However, based on the effects of both attitudes and higher levels of early employment among younger women, later cohorts of women reaching the middle years may display greater employment propensities.

In summary, recent declines in sex-role traditionality among American women are likely to accelerate the desire for employment among whites, despite the relatively weak short-run influence of employment-related attitudes on immediately subsequent work behavior. We argue for such effects on the basis of evidence that attitudes and behavior interact to produce a long-term spiral of nontraditional orientations and increasing employment. For the brief period under investigation, this feedback relationship exists among both young and older white wives. In contrast, among blacks, attitudinal changes appear to have little salience for the future employment of current adult cohorts. However, early labor force involvement has a strong influence on continued employment, and any changes in early market work for black adolescents soon entering the labor force will be important predictors of their future desire for work. Our findings

that education and job training are fairly strong positive influences on labor force participation among blacks suggests that programs aimed at providing such skills to minorities may be one such influence increasing both the long-term and short-term desire for work among black women. Finally, especially among whites, the attitudes of husbands towards women's involvement in the labor market need to be addressed in labor force analyses. Particularly given the currently undeveloped state of our knowledge of changes in men's attitudes, this is a priority for future research.

POLICY IMPLICATIONS

Our previous discussion focused on several findings of this research: the spiraling relationship between sex-role attitudes and women's employment behavior, differences in this relationship between black and white women, future employment patterns that may result from the interaction of attitudes and women's labor force patterns, and the importance of husbands' attitudes in modeling their wives' employment. Each of these conclusions has implications for the development of employment policy and the estimation of labor force projections.

First, to the extent that various groups of (white) women differ in their sex-role attitudes as well as their rate of change in such orientations, the desire for work will vary according to these attitudes. Consequently, the development of programs to stimulate employment opportunities should take account of the varying target populations of women that will be seeking work at differential rates. Those women with especially non-traditional orientations are likely to make the heaviest demands for future

inclusion in the labor force. These sectoral differences in desires for employment, as well as the over-all level of change in sex-role attitudes, should be important components of employment policies that seek to match available opportunities with the skills and desires of potential workers, and are consonant with improving the status of women and achieving affirmative action goals.

Second, we observed that among whites, the number of children at home has little influence on short-run employment behavior; however, the impact of husbands' attitudes was important. While fertility trends should not be abandoned as variables in labor force projections -- to the extent that delayed childbearing increases early labor force involvement, fertility rates will remain important -- we are suggesting that data on changing attitudes toward employment of both men and women should be collected also and applied to the development of projections.

Third, among black women, attitudes have little influence on employment behavior, but early employment experience is an important predictor of later market work. Consequently, governmental intervention to decrease teenage unemployment must recognize the potentially important spiral of desire for continued employment that may result from higher early labor force participation rates. This longer-term effect implies a need to go beyond the development of job opportunities for youth to programs with a greater career focus.

Fourth, we caution against the heavy reliance on projections based on post-World-War-II employment trends. To the extent that changing attitudes shape the desire for labor market work (and based on the accelerated change of these attitudes) existing projections may be grossly inaccurate,

especially for young women currently reaching adulthood. Similarly, even among older women, attitudes are an important component of the sex-role/employment spiral. Among women of all ages both attitudes and labor force experience have shifted over the last decade. We suspect that the life-cycle pattern of rapidly declining employment rates at older ages partly reflects the traditional attitudes of older women and their lack of occupational advancement due to minimal work experience. Consequently, we can not assume that the sharp drop-off in employment characteristic of women in the later years (over age 50) will necessarily continue as attitudes change and life-time work experience increases. Should their employment rates remain relatively high, they will provide competition with less-experienced workers (both male and female) seeking initial entry into the labor force. The decline in employment rates late in life has been an important source of occupational mobility and job opportunities for youth, one that may diminish in the future. The implications of a change in this life-cycle pattern for policies aimed at reducing youth unemployment may be a seriously underestimated problem in current policy formulation.

Finally, while we have made a strong case for the importance of sex-role attitudes as an influence on the long-term spiral of women's desire for employment, except for the NLS data little additional survey material exists for further tests of these findings. We urge the investment of resources for the collection of additional data in order that both policy development and labor force projections may accurately reflect the major attitudinal and behavioral changes currently under way in American society.

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The Center for Human Resource Research

The Center for Human Resource Research is a policy-oriented research unit based in the College of Administrative Science of The Ohio State University. Established in 1965, the Center is concerned with a wide range of contemporary problems associated with human resource development, conservation and utilization. The personnel include approximately twenty senior staff members drawn from the disciplines of economics, education, health sciences, industrial relations, management science, psychology, public administration, social work and sociology. This multidisciplinary team is supported by approximately 50 graduate research associates, full-time research assistants, computer programmers and other personnel.

The Center has acquired pre-eminence in the fields of labor market research and manpower planning. The National Longitudinal Surveys of Labor Force Behavior have been the responsibility of the Center since 1965 under continuing support from the United States Department of Labor. Staff have been called upon for human resource planning assistance throughout the world with major studies conducted in Bolivia, Ecuador and Venezuela, and recently the National Science Foundation requested a review of the state of the art in human resource planning. Senior personnel are also engaged in several other areas of research including collective bargaining and labor relations, evaluation and monitoring of the operation of government employment and training programs and the projection of health education and facility needs.

The Center for Human Resource Research has received over one million dollars annually from government agencies and private foundations to support its research in recent years. Providing support have been the U.S. Departments of Labor, State, and Health, Education and Welfare; Ohio's Health and Education Departments and Bureau of Employment Services; the Ohio cities of Columbus and Springfield; the Ohio AFL-CIO; and the George Gund Foundation. The breadth of research interests may be seen by examining a few of the present projects.

The largest of the current projects is the National Longitudinal Surveys of Labor Force Behavior. This project involves repeated interviews over a fifteen year period with four groups of the United State population; older men, middle-aged women, and young men and women. The data are collected for 20,000 individuals by the U.S. Bureau of the Census, and the Center is responsible for data analysis. To date dozens of research monographs and special reports have been prepared by the staff. Responsibilities also include the preparation and distribution of data tapes for public use. Beginning in 1979, an additional cohort of 12,000 young men and women between the ages of 14 and 21 will be studied on an annual basis for the following five years. Again the Center will provide analysis and public use tapes for this cohort.

The Quality of Working Life Project is another ongoing study operated in conjunction with the cities of Springfield and Columbus, in an attempt to improve both the productivity and the meaningfulness of work for public employees in these two municipalities. Center staff serve as third party advisors, as well as researchers, to explore new techniques for attaining management-worker cooperation.

(continued on inside of back cover)

A third area of research in which the Center has been active is manpower planning both in the U.S. and in developing countries. A current project for the Ohio Advisory Council for Vocational Education seeks to identify and inventory the highly fragmented institutions and agencies responsible for supplying vocational and technical training in Ohio. These data will subsequently be integrated into a comprehensive model for forecasting the State's supply of vocational and technical skills.

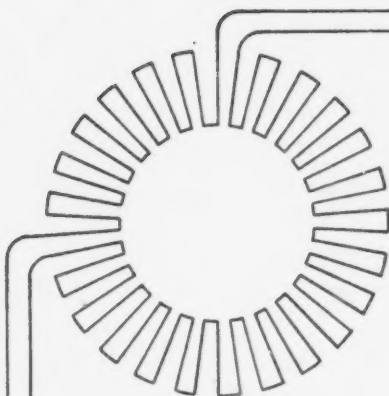
Another focus of research is collective bargaining. In a project for the U.S. Department of Labor, staff members are evaluating several current experiments for "expedited grievance procedures," working with unions and management in a variety of industries. The procedural adequacies, safeguards for due process, cost and timing of the new procedure are being weighed against traditional arbitration techniques.

Senior staff also serve as consultants to many boards and commissions at the national and state level. Recent papers have been written for the Joint Economic Committee of Congress, The National Commission for Employment and Unemployment Statistics, The National Commission for Manpower Policy, The White House Conference on the Family, the Ohio Board of Regents, the Ohio Governor's Task Force on Health, and the Ohio Governor's Task Force on Welfare.

The Center maintains a working library of approximately 9,000 titles which includes a wide range of reference works and current periodicals. Also provided are computer facilities linked with those of the University and staffed by approximately a dozen computer programmers. They serve the needs of in-house researchers and users of the National Longitudinal Survey tapes.

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Center for Human Resource Research

Racial Equity, Racial Equality,
and Reverse Discrimination

by

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RACIAL EQUITY, RACIAL EQUALITY, AND REVERSE DISCRIMINATION

ABSTRACT

This study examines the relationship between racial equity in labor market processes and racial equality in future labor market rewards. In particular, a regression standardization procedure is used to project the degree of racial inequality in earnings that would exist among men at various future points in time based on three different sets of assumptions about attainment processes in labor market and educational institutions. The most important results suggest that even if racial discrimination were eliminated immediately in labor market and educational institutions, it would take almost 50 years for the black-white earnings ratio to reach .95. I argue that this incompatibility between equity and equality needs to be considered more explicitly both by those who advocate a colorblind labor market and those who advocate preferential treatment for blacks.

RACIAL EQUITY, RACIAL EQUALITY, AND REVERSE DISCRIMINATION

Introduction

Labor market outcomes (e.g., pay, job authority, job security) can be conceptualized as functions of certain inputs (e.g., ability, credentials, experiences), and the processes by which inputs are transformed into outcomes. Thus, it is axiomatic that changes in labor market processes will have an impact on future distributions of labor market rewards; however, the way these changes affect outcomes is not well understood. This is indeed unfortunate since labor market processes are not static. In particular, there is mounting evidence that the degree of racial discrimination in the labor market is diminishing. Consequently, it is important to examine the impact that equitable labor market processes would have on racial inequality in future labor market outcomes.

A better understanding of this relationship would be very helpful in formulating and evaluating anti-discrimination policies. The elimination of discrimination against blacks has been a major goal of public policy in the United States in recent years. However, in the implementation of this policy, many difficult issues have arisen. One of the most difficult, and one that is becoming increasingly important, is reverse discrimination. Some argue that equal opportunity should be the goal of public policy and that just as employers should not discriminate against blacks, neither should they show preference to them. Others argue that if there is to be racial equality in outcomes, affirmative action programs giving preference to blacks are necessary to overcome the effects of previous discrimination.

NOTE: A set of Appendix Tables showing some of the details of the analysis described in this paper can be obtained from the author upon request.

One purpose of this paper is to examine the degree to which the two goals of equity and equality are compatible.

The following two sections present a discussion of conceptual and social issues concerning the relationship between racial equity in the labor market and racial inequality. Next is a description of the empirical analysis of earnings inequality among black and white men, followed by the results discussed in terms of the conceptual and social issues described earlier. Before concluding, I perform an additional experiment to examine the implications of racial equality in educational attainment on the relationship between labor market equity and earnings inequality.

The problem and conceptual issues

Throughout this paper, a distinction is made between equity, which refers to a process, and equality, which refers to a set of outcomes. Racial equity, or the absence of racial discrimination, is defined to exist when labor market processes operate the same for blacks and whites. Thus, racial equity is similar to the notions that there is no longer a cost to being black (Siegel, 1965), that inheritance of race is no longer a problem (Duncan, 1969), or that race is no longer significant (Wilson, 1978). Racial equality is defined to exist when blacks and whites have the same distribution of labor market outcomes. Given this framework, an important question is, If labor market processes were suddenly to become equitable, what levels of racial inequality would still be implied by the present level of racial differences in input characteristics? Put another way, If inheritance of race were no longer significant, what would be the implications of inheritance of poverty or class for the future levels of racial inequality?

This question is becoming increasingly important, and will become more so as labor market processes become more equitable. Regarding changes in labor market processes, some observers have argued that racial discrimination is diminishing (e.g., Wilson, 1978; Freeman, 1973). Others argue that there has been little or no improvement in the opportunities of blacks relative to whites (e.g., National Urban League, 1980; Lazear, 1979). Most of the empirical evidence suggests that racial discrimination has diminished, at least in terms of earnings and occupational status (e.g., Farley, 1977, 1979; U.S. Commission on Civil Rights, 1978; Daymont, 1980a; 1980b; Johnson and Sell, 1976). Of at least equal importance to this evidence on recent trends is a consideration of the prospects for the future. Such prospects are extremely difficult to assess because changes in racial discrimination are a complex function of a number of factors including government action, the attitudes of whites toward blacks, and black political power (c.f. Burstein, 1979). However, there is some reason for optimism. First, it appears that the leaders of the government's equal opportunity efforts are learning from past experiences and are reorganizing their agencies so that they can be more effective (U.S. Commission on Civil Rights, 1977). For example, in 1978 the Office of Federal Contract Compliance Programs assumed enforcement and policymaking responsibilities for the entire contract compliance program. Previously, these responsibilities had been carried out by a number of other federal agencies--many of which seemed to give rather low priority to enforcing equal employment opportunities on government contract work. Second, the increasingly favorable attitudes of whites toward blacks and the greater political

power possessed by blacks portend a continued improvement in the opportunities of blacks relative to whites (e.g., Freeman, 1977). More generally, we may expect that as the process of industrialization continues and as our society becomes more rational, labor market processes will become more universalistic and race will become less important (Levy, 1966; Featherman and Hauser, 1978:382). Of course, any optimism must be tempered by a realization that racially equitable labor market processes are not imminent. However, we should not wait until equity is close at hand before we begin to examine the effects that equitable labor market processes would have on future levels of racial inequality.

The degree of inequality that would exist under conditions of racial equity in the labor market will depend upon the level of racial differences in labor market inputs. For men who are already in the labor market, many important input factors such as education and pre-labor market experiences have already been determined and will not be affected by racial equity. In addition, attainments of these men have already been affected by discrimination at the time of labor market entry. Thus, racial equity may be expected to have only a limited impact on racial inequality among men already in the labor market.

The level of racial differences in inputs for future labor force participants will be a function of a number of factors, two of the most important of which are racial discrimination in educational institutions and the unfavorable socioeconomic backgrounds of blacks resulting from previous discrimination. If we consider the case of racial equity in educational institutions as well as in the labor market, then the primary

factor inhibiting racial equality will be the unfavorable background environments of future black cohorts. The background environment of one generation is, in part, a function of the labor market success of the previous one. Thus, if racial discrimination in labor market and educational institutions were eliminated, racial differences in outcomes would diminish for labor market participants; this diminution would in turn result in smaller racial differences in background environments in the next generation. If other factors (e.g., the labor market effects of housing segregation) are not important, then this will lead to an eventual convergence to racial equality; however, it is not at all clear how long this would take.

The issue of reverse discrimination

The debate over the issue of reverse discrimination can be viewed as a political struggle between individuals and groups who justify their position by appealing to different values, beliefs, and legal opinions (c.f., Gross, 1977: 4). Opponents of reverse discrimination argue that it is equality of opportunity, not equality of outcomes, that constitutes a basic value of our society. Expressions of the value of equality of opportunity are found in many forms, ranging from formal statements in the Constitution and other public documents to informal slogans referring to the United States as a land of opportunity. Thus, it is not surprising that as the Civil Rights movement has gained momentum, statements of purpose have usually been phrased in terms of eliminating discrimination or equalizing racial differences in opportunities, rather than equalizing differences in outcomes. Of particular importance is Section 703(d) of the Civil Rights Act of 1964 which states, "It shall be unlawful employment practice...to discriminate against any individual because of

his race..." This line of reasoning leads to the conclusion that affirmative action plans operating to eliminate racial discrimination are appropriate and necessary, but that affirmative action plans giving preferences to blacks are not.¹ Advocates of this policy tend not to address the issue of equality as defined here, i.e., the question of what effect their policy would have on the rate of convergence of labor market rewards. When this issue is addressed, the usual argument is simply that the value of equity takes precedence over equality.

Proponents of affirmative action programs giving preferential treatment to blacks argue that had it not been for discrimination in the past, racial equality would exist today, and that it is necessary to give preference to blacks in order to neutralize the effects of previous discrimination. Analogously to opponents of reverse discrimination, proponents of this point of view tend not to confront the issue of equity. Often their strategy is to pose the issue as a choice between affirmative action programs which give preferences to blacks or the lack of affirmative action programs (resulting in discrimination against blacks).

Questions about the rate of convergence toward equality given labor market equity have been an important aspect of this debate. For example, a reading of the recent Weber decision by the U.S. Supreme Court indicates that a belief that the rate of convergence toward equality would be too slow was instrumental in its decision to permit voluntary affirmative action programs giving preferences to minorities. It is important to note that despite this decision, the issue of reverse discrimination in the labor market is far from being decided. The Weber case pertained only to certain aspects of this issue, and other reverse discrimination cases are working their way through the courts. In addition, the Congress

and the Executive branch will play an important role in determining future policy on this issue. The degree to which future policy decisions either support or reject reverse discrimination is likely to depend in part on the beliefs decision makers have about the rate of convergence toward equality given an equitable labor market.

Previous empirical research

Given the importance of the relationship between racial equity and racial equality, it is surprising that it has been examined in only one previous empirical study. Using a Markov model of intergenerational occupational transmission, Lieberman and Fuguitt (1967) found that if racial discrimination in the job market were eliminated, there would be a sharp decline in racial differences in occupational distributions after only one generation; however, it would take several generations before parity would be reached. This study will expand on their effort in a number of ways; one important difference is that the present study uses models of intragenerational labor market processes in order to be able to assess the nature of changes that occur more rapidly than over a generation.

Analysis

The basic analytical problem is similar to that faced by Lieberman and Fuguitt (1967); that is, to project future levels of labor market outcomes for black and white men under different assumptions about labor market processes. Since Lieberman and Fuguitt (1967) were concerned with an intergenerational model of mobility among categories of occupations, a discrete time, discrete state Markov model was a natural choice for making projections. Since this paper deals with an intra-

generational model of changes in a continuous variable (earnings), a regression standardization approach is used to make projections.

In general, this approach can be thought of as having two steps. The first step is to estimate the parameters of a model of earnings attainment assuming racial equity (or inequity). Then these parameter estimates are incorporated into a simulation model to project future levels of mean earnings for blacks and whites.

Estimating the parameters of equitable intragenerational labor market processes. Data for this analysis were drawn from the Michigan Panel Study of Income Dynamics (Morgan, selected years). Restricting the analysis to men, I began by dividing the sample into six 8-year age groups: 17-24, 25-32, ..., 57-64. Then, the general strategy for estimating the parameters of an equitable labor market process is to estimate the following equation for pooled samples of black and white men in each group:

$$E_{77,ij} = \alpha_j + \beta_j E_{69,i,j-1} + \gamma_j' X_{ij} + v_{ij} \quad (1)$$

where $E_{77,ij}$ is the mean earnings in 1976 and 1977 for individual i in age group j ; $E_{69,i,j-1}$ is the mean earnings for individual i in 1968 and 1969 when he was in the next youngest age group; X_{ij} is a vector of labor market input and control variables; v_{ij} is a residual term; and α_j , β_j , and γ_j are the parameters of the intragenerational earnings attainment process for age group j . I use the mean level of earnings for two years for each of the earnings measures (i.e., 1976 and 1977 for E_{77} and 1968 and 1969 for E_{69}) to increase their reliability. The labor market input and control variables that are included in X are

education (EDUC), father's earnings (DAD), southern origins (SOUTH), farm origins (FARM), AGE, and RACE.² When this model is used to make projections based on an equitable labor market, the RACE parameter is not included. However, it was included in the estimation model so that the coefficients of other variables would not be biased due to the association of these variables with race. For example, in an inequitable labor market, such as the one that existed between 1968 and 1977, part of a measured effect of father's earnings not controlling race would reflect the fact that blacks tend to have low scores on father's earnings and are discriminated against. So I include race to obtain an estimate of the effect of father's earnings net of this discrimination component, which of course would not exist in an equitable labor market.

With the exception of the two youngest age groups, the earnings equations were estimated using samples of men who were approximately full-time workers in both 1968-69 and 1976-77.³ However, such a restriction in the two youngest age groups would preclude the opportunity to model earnings attainment near the time of labor market entry. This would be very unfortunate, since this is a time when differences in education and social background play an especially important role in determining earnings. In order to model earnings attainment at the time of labor force entry, an earnings equation was estimated separately for two "tracks" of men in the two youngest age groups. Track 1 consists of those men who were not working full-time by the time they reached ages 17-24, and track 2 consists of those men who were working full-time at these ages. Thus track 2 men aged 25-32 in 1977 have values for E_{69} and equation (1) is estimated for them as is. Track 1 men aged 25-32 in 1977 and track 2 men aged 17-24 in 1977 do not have values for E_{69} and therefore this

variable is eliminated from the model. Thus, for these two samples, the process of earnings attainment is modelled at the time of labor market entry. Track 1 men aged 17-24 in 1977 have not yet entered the labor market and are not analyzed. Consequently, to be completely accurate, all variables and (for the two youngest age groups) parameters in the text should have an additional subscript to indicate that the analysis is disaggregated by track. However, these subscripts have been deleted to simplify the presentation.

As will be clear in the next section, it was also necessary to estimate parameters of the educational attainment processes for the two youngest age groups. To do this, education was expressed as a linear regression function of father's earnings, southern origins, farm origins, and age for pooled samples of blacks and whites.⁴ Note that there is no race term in this equation. This was omitted because when the process of educational attainment was modelled separately for each race, blacks and whites with similar levels of explanatory variables had similar levels of expected educational attainment. Moreover, when a race term was included in equation (2), its effect was not significant for any combination of track and age group.

For each sample, the earnings and education equations were estimated by ordinary least squares.

Projecting earnings into the future

Estimating the equations described in the previous section yields estimates for α_j , β_j , and γ_j where j refers to age group. To predict the mean level of earnings for 1984-85 (E_{85}) for cohort k and race r ,

I calculate

$$\hat{E}_{85,kr} = \hat{\alpha}_j + \hat{\beta}_j \bar{E}_{77,kr} + \hat{\gamma}_j' \bar{X}_{85,kr} \quad (2)$$

where j refers to the age group of cohort k in 1985 and the bar over E and X indicate the mean. The variables in $\bar{X}$ are the same as those described in the previous section except that the variable RACE was excluded to simulate an equitable labor market process. It is then straightforward to calculate the mean earnings for each subsequent period in the future. In general:

$$\hat{E}_{tkr} = \hat{\alpha}_j + \hat{\beta}_j \bar{E}_{t-1,kr} + \hat{\gamma}_j' \bar{X}_{tkr} \quad (3)$$

where j refers to the age group of cohort k in time period t .

In order to use equation (3) to calculate future levels of expected earnings, the values of explanatory values in $\bar{X}$ need to be specified. Let us first consider the variables of southern origins, farm origins, and age. For existing cohorts, the values for these variables are simply calculated from the data. For cohorts who will enter the labor market in the future, subjective judgments were made as to reasonable values for these variables.⁵

For existing cohorts, values for father's earnings (DAD) were also calculated from the data. The values of father's earnings for white members of future cohorts were obtained by projecting a linear trend across existing cohorts.⁶ Values for father's earnings for black members of future cohorts were calculated so that the ratio for blacks and whites would equal the earnings ratios for men who were about the age as the members' fathers. Assuming that the average age of fathers is about 28 years, and that there is a rather wide age range among fathers,

a weighted average of the (expected) earnings of men 2, 3, 4, and 5 cohorts older was taken as representative of the fathers of the members of a future cohort.⁷ For each cohort, the variables father's earnings, southern origins, and farm origins remain constant and age is simply incremented by 8 as the cohort evolves through each successive age group.

For all existing cohorts except the youngest, the values for education were calculated from the data. For the youngest existing cohort, and for future cohorts, the values for education were calculated as a linear regression function of the background and age variables.⁸ Because many men do not complete their education by the time they have reached the age of the youngest age group (17-24), the education function is estimated twice for each cohort--once when its members are in the age group 17-24, and then again when they are in the age group 25-32. The level of education for the cohort is then assumed to remain unchanged as it evolves through successively older groups.

Once the mean values for the explanatory variables in X for future cohorts had been predicted, they, along with values for present earnings and the parameters for equitable labor market processes, were substituted into equation (3) to obtain predictions of expected earnings for each future time period through 2105. For all cohorts younger than the one aged 25-32 in 1977, there were separate predictions for each track; thus, a weighted average of the two tracks was calculated to obtain expected levels of earnings for blacks and whites.⁹ Then, I calculated the black-white ratio of these earnings levels. Finally, as a summary measure, the age group specific earnings ratios were aggregated to yield a black-white earnings ratio for each year.¹⁰

Until this point, the discussion has focused on procedures used to estimate and make projections based on labor market equity. Projections were also made based on the assumption that the degree of labor market inequity that existed between 1968 and 1977 would persist indefinitely. To allow for racial inequalities in labor market processes during this period, the earnings equations were estimated separately for blacks and whites. Then the parameters from the race specific equations were used to project earnings. That is, the parameters from the black (white) earnings equations were used to project future levels of black (white) earnings in equation (3).¹¹

The results of this analysis should be taken provisionally. This is partly due to the simplifying assumptions that were made in conducting the analysis. Some possible implications of one of these assumptions, time homogeneity, will be briefly discussed in the next section. Also, the analysis does not consider racial differences in nonemployment. In addition, no attempt was made to account for the possible effects of measurement error or sample selection bias. Further research needs to be done to relax, or at least test for sensitivity to, these assumptions.

Despite its rather large overall size, the sample used in this study includes a limited number of blacks in the older age groups. Thus, the regressions for blacks in the older age groups are quite sensitive to sample variability.¹² This probably explains some of the instability in the projected earnings ratio under the inequity assumption. Since the projections under the assumption of labor market equity were based on regressions estimated on pooled samples of blacks and whites, these projections are much less sensitive to sampling variability.

Results and discussion

Let us begin by looking at the results for the inequitable labor market in Table 1 and the lower projection in Figure 1. (Age group specific results are presented in Appendix Table A.4). In an equitable labor market the estimated black-white earnings ratio climbs from .75 in 1977 to .80 in 1985 and eventually levels off to about .78. Although these results need to be interpreted with caution, they do suggest something about the period 1968 to 1977, since this projection was based on the labor market processes that prevailed during this period. On the one hand, these earnings ratios represent a significant improvement over the earnings ratios, about .62, that existed at the end of the 1960's (Freeman, 1973; Smith and Welch, 1978; Farley, 1977). Of course, these results do not indicate the degree to which this change is a direct result of changes in labor market processes. However, other research (e.g., Farley, 1977; 1979; Daymont, 1980a; 1980b; U.S. Commission on Civil Rights, 1978) provides strong evidence that changes in racial differences in inputs cannot account for such a change in outcomes and that there was a substantial reduction in labor market discrimination in terms of earnings during this period. On the other hand, these projections remind us that substantial inequities remain. Even assuming an equitable educational process, the labor market processes operating between 1968 and 1977 imply a long run black-white earnings ratio of only .78.

(Table 1 and Figure 1 about here)

The pattern of the earnings ratios under the assumption of labor market equity (Table 1 and the higher solid line in Figure 1) conforms to what one might expect: there is a significant initial improvement

and it continues, but its magnitude diminishes over time. The important question is, How fast does the black-white earnings ratio converge toward one? Unfortunately, it appears that convergence is not very fast: starting from an initial value of .75 in 1977, it takes 16 years for the ratio to reach .84 and almost 50 years for it to reach .95.

A look at the age group specific earnings ratios (Table 2) suggests that a major reason for the slow rate of change is that men who had entered the labor market prior to the achievement of labor market equity will remain a substantial part of the labor force for some time. In particular, for each age group there is a substantial increase in the earnings ratio in the period when it is first occupied by men who entered the labor market after racial equity had been imposed. However, in no way does this completely explain the lack of a rapid convergence toward racial equality. In particular, we can see that even among men who entered the labor market 8 to 16 years after it had become equitable, blacks attain significantly lower earnings than whites, especially in their middle years.

These results provide strong evidence that even if we could eliminate the disadvantage that blacks suffer due to labor market discrimination, they still would be at a disadvantage due to their relatively unfavorable background for a long time to come. This can be illustrated by looking at Table 3, which shows the black-white ratio for father's earnings for each future cohort. We can see, for example, that the blacks in the cohort aged 17-24 in 2001 would have fathers who earned only about 83 percent as much as the fathers of whites. Even with equitable educational and labor market institutions, the less favorable backgrounds of blacks in this cohort lead to their attaining measurably lower earnings than whites throughout their lifetime: the estimated black-white earnings

ratio across the years (2001 to 2041) when most of these men will be in the labor force is .98, .96, .92, .94, .95, and .96 respectively (Table 2). This implies that there would be black members of the labor force who suffer a nontrivial disadvantage due to previous discrimination more than a half century after the labor market had become equitable.

(Table 2 and 3 about here)

It should be noted that my analysis of the implications of racial equity on future racial equality assumes that nonracial aspects of the process of earnings determination that were present between 1968 and 1977 will persist over time. Thus, I assume that the linkage between earnings at one point in the life cycle and factors such as previous earnings, education, and background remain the same. However, there is some evidence (e.g., Featherman and Hauser, 1978) that aspects of these processes are changing. For example, it appears that the linkage between background and earnings may be weakening. To the extent that such a change in process were significant, it would suggest that the unfavorable background of blacks would be less of a disadvantage in the future and that there would be a somewhat more rapid convergence toward equality than indicated by these results. In addition, it should be remembered that the labor market models used to make these projections are a function of the stagnant economic conditions that were present during much of the 1970's.¹³

These results have implications for the evaluation of government programs, whether their goals are to eliminate discrimination or to produce racial equality. To the extent that the goal is to produce

racial equality in labor market outcomes, it is clear that it cannot be achieved in the near future without reverse discrimination. To the extent that reverse discrimination is not considered a viable policy option on philosophical grounds and that racial equity is the goal of these programs, these results indicate that a substantial degree of racial inequality will remain even if equity is attained. These results raise the important issue of whether such inequalities are justified. And furthermore, if they are not, what are the possibilities and problems for other remedies, such as reparations, for reducing the economic inequality between blacks and whites?

In addition, these projections demonstrate the importance of being more rigorous in the assessment of programs designed to produce racial equity in the labor market. In particular, we must recognize that changes in measures of labor market outcomes respond too slowly to be valid indicators of program effectiveness. For example, let us suppose that discrimination had been eliminated as of 1977. Now turning the clock ahead to 1985, our results suggest that we would observe that the black-white earnings ratio had risen to only .79. If we were to fail to consider how slow aggregate distributions of outcomes respond to changes in process, we might take this as evidence that blacks were still being discriminated against, when it actually is consistent with racial equity having existed since 1977.

This line of reasoning suggests that if racial equity (as of 1977) were the goal of social policy, then a (substantially refined version of a) projection such as this might actually be used as a standard for judging whether labor market processes are consistent with racial equity.¹⁴

At least one more point needs to be made concerning these results. There is a substantial within cohort age effect on these earnings ratios (Table 2). That is, even in a racially equitable labor market we can expect the black-white earnings ratios for cohorts to decline as they age from young adults to mid-life. This result has two important implications. First, recent evidence of high black-white earnings ratios among young men should not be taken as valid indicators of the life chances of young blacks--we can expect these ratios to decline as these men approach mid-life. Second, such a decline should not be taken as an indicator of greater racial discrimination--it appears that they would occur even in an equitable labor market.

The effects of educational equality

Although a thorough investigation of the potential effects of various forms of reverse discrimination is beyond the scope of this paper, I do briefly examine one aspect of this issue. In the context of these models, it is interesting to distinguish between two forms of reverse discrimination. First, advantages could be given to blacks in educational institutions to compensate them for their less favorable backgrounds in such a way as to eliminate racial differences in educational attainment. Second, advantages could be given to blacks in labor market institutions in such a way as to equalize racial differences in earnings. In order to assess the impact of reverse discrimination in educational institutions, I recalculated the projections based on an equitable labor market with the additional assumption that the mean level of education for blacks equals the mean level of

education for whites for all future cohorts (Table 1 and the dotted line in Figure 1). This projection suggests that reverse discrimination resulting in an equalization of educational outcomes would significantly increase the rate of convergence in labor market outcomes. However, this convergence would not be immediate--for example, it would take approximately 24 years for the earnings ratio to reach .95. Not surprisingly, the age-group specific projects (Table 4) suggest that the delay in convergence is primarily because members of existing cohorts, whose earnings will not be affected by educational equality, will remain a part of the labor force for some time. On a more positive note, it does appear that the combination of educational equality and labor market equity would produce nearly equal labor market outcomes for blacks and whites in all future cohorts.

Conclusions

This paper is not an attempt to predict what will actually happen in the future. Instead, it represents a beginning attempt to improve our understanding of how changes in racial dimensions of labor market processes would influence racial inequality in earnings. To do this, a regression standardization procedure was used to project future levels of the black-white earnings ratio under different assumptions about labor market and educational institutions. The most interesting projections were based on the assumption of racial equity in labor market and educational institutions. The pattern of these future indicators based on this assumption suggest that there would be a significant initial reduction in racial inequality and an asymptotic convergence

toward equality. However, this convergence would not be very fast: starting from an initial value of .75 in 1977, it would take 16 years for the ratio to reach .84 and almost 50 years for it to reach .95. Thus, even if labor market and educational attainment processes were to no longer discriminate on the basis of race, the unfavorable backgrounds of blacks would result in lower levels of economic attainment for blacks than for whites well into the next century.

As a society, we are and will continue to be faced with difficult decisions concerning the issue of reverse discrimination. The outcome of this decision making process will be determined by a combination of legal issues, philosophical attitudes (for example, whether equity or equality is more highly valued), and beliefs about relevant social facts (in particular, the degree of compatibility between the two goals of equity and equality). A primary purpose of this study was to improve our level of knowledge about the relationship between racial equity and racial equality. Unfortunately, our results suggest a substantial degree of incompatibility between these two goals over the next several decades, thereby underscoring the difficulty of the problem before us.

To the extent that the goal of public policy is racial equality, the results indicate that this goal cannot be achieved without reverse discrimination.

To the extent that the goal is racial equity, the results indicate that changes in measures of labor market outcomes respond too slowly to be valid indicators of short run changes in racial discrimination. It is argued that an approach similar to that in this paper might be used as a standard for judging whether labor market processes are consistent with racial equity.

NOTES

¹ Affirmative action represents a wide range of activities including recruiting activities, hiring goals and quotas, and enforcing equal pay for equal work. One dimension along which affirmative action activities can be assessed is the degree to which they give preferences to blacks or whites. Affirmative action efforts that do not result in preferences to blacks or whites of equal ability are consistent with the notion of labor market equity. For example, increased recruiting at black colleges that counterbalances the normal recruitment at predominantly white colleges would be consistent with labor market equity. Affirmative action efforts that give preferences to a black because of his race would constitute reverse discrimination. Thus, affirmative action goals (or, logically speaking, even a quota system) would not necessarily be reverse discrimination--it would depend upon whether the imposition of goals lead to preferences being given to blacks in terms of hiring and promotions.

² These variables were operationalized as follows. Father's earnings is not directly available in the PSID data. However, father's occupation (coded in 10 categories) when the respondent was 14 years old is available. Thus, to construct an indicator father's earnings (DAD), I simply used the race specific mean earnings in 1970 for the respondent's father's occupation (U. S. Bureau of Census, 1973: Tables 1 and 2). Education (EDUC) was coded as the number of years of school completed. Southern origins (SOUTH) was coded 1 if the respondent resided in the South; 0, otherwise. Farm origins (FARM) was coded 1 if the respondent's father had a farm related occupation; 0, otherwise. AGE is the respondent's age in 1977. RACE was coded as 1 if the respondent is black; 0, otherwise.

³ More specifically, respondents were included if (1) they worked at least 1400 hours and had data present for earnings in either 1968 or 1969, (2) they worked at least 1400 hours and had data present for earnings in either 1976 or 1977, and (3) they had data present for education. For missing data on other variables, the race specific mean was substituted. If a respondent worked 1400 hours and had data available for earnings for only one of the two years being averaged (say 1976 but not 1977), then the earnings for that year was used as the measure of earnings.

⁴ More specifically, the equation is:

$$\begin{aligned} \text{EDUC}_{ijs} = & \theta_{1js} + \theta_{2js} \text{DAD}_{ijs} + \theta_{3js} \text{SOUTH}_{ijs} + \theta_{4js} \text{FARM}_{ijs} \\ & + \theta_{5js} \text{AGE}_{ijs} + v_{ijs} \end{aligned}$$

for $j = 1, 2$ and where v_{ijs} is the residual term for individual i in age group j and track s .

⁵ It was assumed (1) that the average age of newly entering cohorts in the future would be about the same as the average age of cohorts entering between 1968 and 1977, (2) that there would be a slow trend toward a smaller proportion of men having farm origins, and (3) there would be a declining number of blacks with southern origins. The results of some sensitivity analyses suggested that the projections were not very sensitive to the level of these variables that were specified.

⁶ Specifically, I estimate the following equation on the six existing cohorts:

$$DAD_{kw} = \theta_1 + \theta_2 k + w_k,$$

for $k = 1, \dots, 6$, where w_k is a disturbance term. I then calculate the values for all future cohorts as follows:

$$\overline{DAD}_{kw} = \hat{\theta}_1 + \hat{\theta}_2 k.$$

Then within each future cohort, the values of DAD for track 1 and track 2 are adjusted so that the percentage differences between tracks equals the average track difference in the two youngest existing cohorts.

⁷ More specifically, $\overline{DAD}$ for future blacks in cohort k and track s was calculated as

$$\overline{DAD}_{kb} = DAD_{kw} \cdot \frac{\sum_{m=2}^5 w_{k+m} \overline{E}_{k+m, tb}}{\sum_{m=2}^5 w_{k+m} \overline{E}_{k+m, tb}}$$

where t represents the time period in which cohort k is in age group 9-16, and $w_{k+m} = .1, .4, .3, .2$ for $m = 2, 3, 4, 5$ respectively, is a weight factor. The results of some sensitivity analyses suggest that these projections are not overly sensitive to my choice of weights. The earnings levels of the "representative fathers" for the period in which their sons became 9-16 were used to maximize the correspondence to the timing of the measurement of DAD for existing cohorts.

⁸ Specifically, values for education is calculated as:

$$\overline{EDUC}_{tkrs} = \hat{\theta}_{1j*s} + \hat{\theta}_{2j*s} \overline{DAD}_{krs} + \hat{\theta}_{3j*s} \overline{SOUTH}_{krs} + \hat{\theta}_{4j*s} \overline{FARM}_{krs} + \hat{\theta}_{5j*s} \overline{AGE}_{kj*rs}$$

where the θ 's are the estimated parameters of the equation in footnote 4 and $j*$ is the minimum of 2 and the age group of cohort k in time period t .

⁹The weights were obtained by averaging across the two youngest existing cohorts for a pooled sample of blacks and whites. These weights are .654 for track 1 and .346 for track 2.

¹⁰For each time period these race specific means are calculated as a weighted average of the age group means. The four middle age groups were assigned a weight of 1.0, the oldest age group was assigned a weight of .5, and the youngest age group was assigned a weight of .33 to roughly correspond to their representation among employed men.

¹¹Since father's earnings and education depend upon the relative earnings of older cohorts, the values of these explanatory variables are different under the assumption of labor market inequity than labor market equity.

¹²This problem is exacerbated by the fact that there are very large differences in the sampling weights across individuals. Because of the sampling scheme (Morgan, 1972: Volume 1: 9-24), a few blacks get very high weights relative to other blacks. For example, over half of the sum of the weights in the sample of blacks aged 57-64 is accounted for by 9 individuals.

¹³The potential effects of this are not straightforward. One possible result of deteriorating economic conditions is to increase the likelihood that blacks, relative to whites, will be unemployed or out of the labor force. Since all such individuals are eliminated from our analysis, this would not affect our results directly, although it could exacerbate the problem of sample selection bias. Also, there is evidence that discrimination is more pronounced (translating into a more highly negative race coefficient) during declining economic conditions. This will not affect projections based on the equity assumption since discrimination is eliminated. However, it may have caused the black-white earnings ratios based on the inequity assumption to be lower than they might otherwise have been.

¹⁴Of course, any given standard is specific to a given starting point for racial equity. Thus, if one desired a standard in terms of racial inequality in 1993 based on labor market equity since 1985, one would have to redo the analysis imposing racial equity in 1985 instead of 1977.

Figure 1 Projected Black-White Earnings Ratios Under Different Labor Market Assumptions

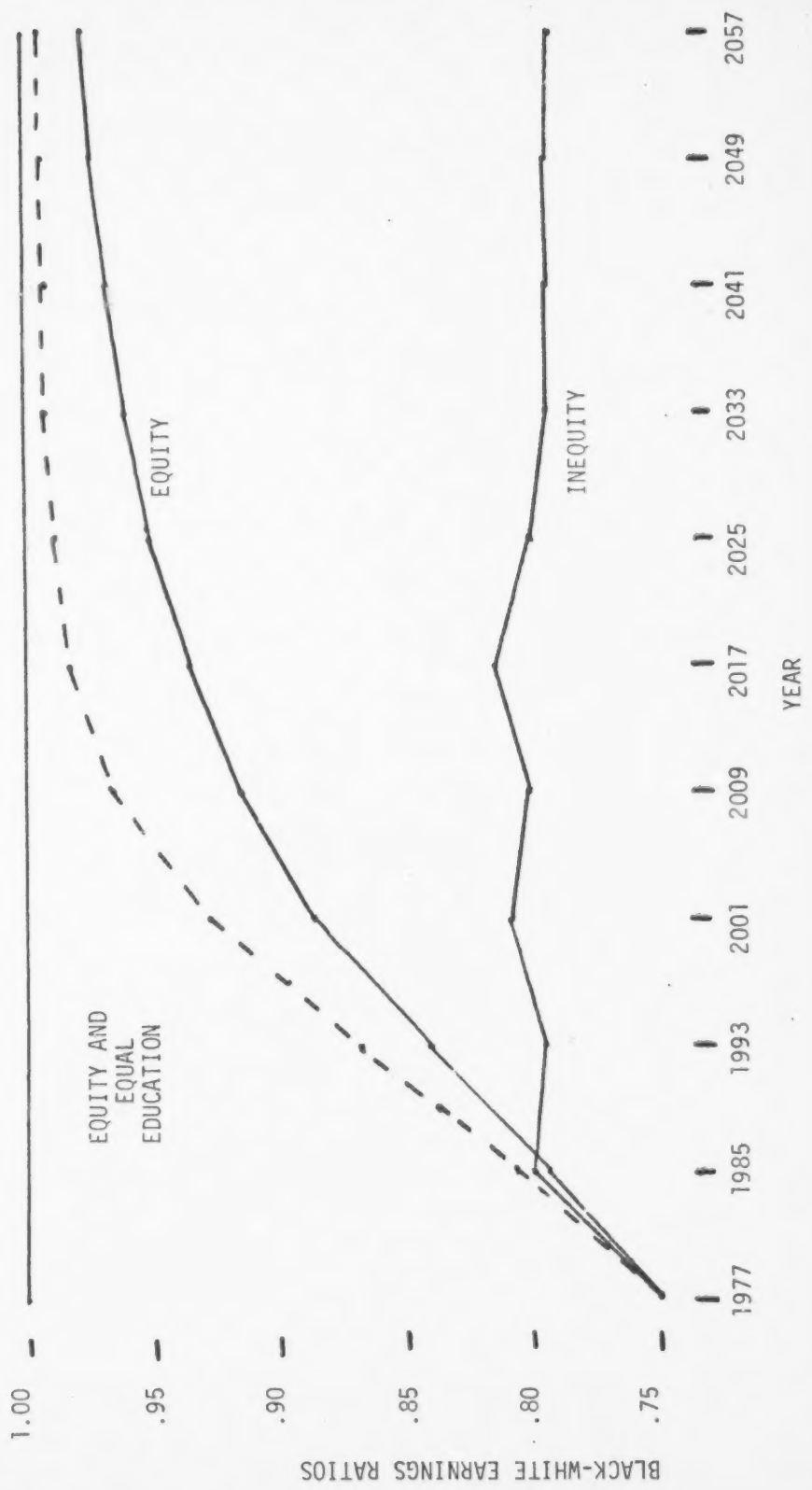


Table 1 Projected Black-White Earnings Ratios Under Different Assumptions About Labor Market Equity and Education Equality

Year	Assumptions		
	Racial Equity	Racial Inequity	Racial Equity and Equal Education
1977	.75	.75	.75
1985	.79	.80	.80
1993	.84	.79	.87
2001	.89	.81	.93
2009	.91	.80	.96
2017	.93	.81	.98
2025	.95	.80	.99
2033	.96	.79	.99
2041	.97	.79	.99
2049	.97	.79	.99
2057	.98	.79	.99
⋮	⋮	⋮	⋮
2105	.99	.78	.99

Table 2 Projected Black-White Earnings Ratios Under Labor Market Equity
by Age Group and Period^a

Year	Age Group					
	17-24	25-32	33-40	41-48	49-56	57-64
1977	.825	.808	.699	.654	.826	.758
1985	.978	.861	.779	.783	.700	.860
1993	.978	.938	.800	.847	.816	.753
2001	.978	.948	.889	.845	.882	.844
2009	.980	.958	.906	.910	.878	.923
2017	.982	.965	.925	.925	.927	.916
2025	.983	.970	.941	.942	.939	.950
2033	.984	.974	.951	.957	.951	.957
2041	.986	.977	.961	.966	.962	.965
2049	.986	.979	.967	.974	.969	.972
2057	.987	.981	.971	.979	.975	.976
2065	.987	.982	.974	.983	.979	.980
2073	.988	.983	.977	.985	.982	.983
2081	.988	.984	.979	.988	.984	.985
2089	.989	.985	.982	.989	.986	.986
2097	.989	.986	.983	.991	.988	.988
2105	.990	.986	.984	.991	.989	.988

^aWithin cohort projections are across northwest-southeast diagonals.

Entries above and to the right of the dotted line refer to men who entered the labor market prior to racial equity. Entries below and to the left of the dotted line refer to men who entered the labor market subsequent to racial equity.

Table 3 Projected Black-White Ratios for Father's Earnings by Year
of Cohort's Entry into the Labor Market

Year	Assumptions		
	Racial Equity	Racial Inequity	Racial Equity and Equal Education
1977	.53	.53	.53
1985	.72	.72	.72
1993	.77	.76	.78
2001	.83	.74	.87
2009	.88	.75	.93
2017	.90	.75	.96
2025	.93	.76	.98
2033	.94	.76	.98
2041	.95	.76	.99
2049	.96	.75	.99
2057	.97	.75	.99
⋮	⋮	⋮	⋮
2096	.98	.75	.99

Table 4 Projected Black-White Earnings Ratios Assuming Labor Market Equity and Equal Levels of Education by Age Group and Period^a

Year	Age Group					
	17-24	25-32	33-40	41-48	49-56	57-64
1977	.825	.808	.699	.654	.826	.758
1985	.993	.922	.779	.783	.700	.860
1993	.991	.985	.887	.847	.816	.753
2001	.988	.987	.950	.937	.882	.844
2009	.987	.987	.957	.971	.964	.922
2017	.987	.987	.969	.979	.986	.933
2025	.988	.987	.979	.986	.987	1.002
2033	.988	.987	.983	.993	.990	1.000
2041	.989	.988	.986	.996	.993	.997
2049	.989	.988	.987	.998	.994	.995
2057	.989	.988	.989	.998	.995	.994
2065	.989	.989	.989	.999	.995	.994
2073	.990	.989	.990	.999	.996	.994
2081	.990	.990	.990	.999	.996	.994
2089	.991	.990	.991	.999	.996	.994
2097	.991	.991	.991	.999	.996	.994
2105	.991	.991	.992	1.000	.996	.994

^aWithin cohort projections are across northwest-southeast diagonals.

Entries above and to the right of the dotted line refer to men who entered the labor market prior to racial equity. Entries below and to the left of the dotted line refer to men who entered the labor market subsequent to racial equity.

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APPENDIX TABLES

Table A-1 Estimated Parameter for Earnings Attainment Process

Explanatory Variable	Age Group						
	17-24 track 2	25-32 track 1	25-32 track 2	33-40	41-48	49-56	57-64
Panel A Labor Market Equity							
E ₆₉	-	-	.7876*	.8231*	.6435*	.8368*	.8305*
EDUC	159.3*	241.6*	562.2*	338.2*	293.7*	79.09	21.01
DAD	-10.73	95.49*	-245.2*	137.9*	25.45	-51.08	-67.98
SOUTH	-365.1*	-369.1**	-743.6**	-170.7	465.3	-313.1	-207.4
FARM	827.4*	-1072*	-410.5	958.0*	-84.73	291.6	-266.5
AGE	291.8*	216.59*	-2.39	40.54	-6.548	-132.4*	-115.3**
RACE	-848.8*	-329.2	-929.9	-600.8	-446.1	1027.5	307.0
CONSTANT	-3198	-2895	-482.9	-4069	-50.86	8157	8852
n	649	508	207	406	400	383	213
R ²	.1220	.1395	.2029	.4283	.4774	.5971	.6490
Panel B Labor Market Inequity - Whites							
E ₆₉	-	-	.8907*	.8313*	.6287*	.8333*	.8344*
EDUC	146.5*	210.8*	550.6*	348.4*	313.9*	78.55	-1.663
DAD	-8.19	98.67*	-252.1*	137.4**	22.49	-46.74	-50.34
SOUTH	-291.4	-499.1**	-1021**	-268.7	479.4	-401.3	-196.1
FARM	971.1*	-1181*	-268.2	944.3**	-334.8	431.9	-310.0
AGE	293.0*	236.9*	-73.38	50.83	-37.85	-153.4*	-129.6
CONSTANT	-3118	-3011	1444	-4603	1323	9240	9777
n	419	333	158	302	296	292	159
R ²	.0981	.1228	.2170	.4184	.4559	.5902	.6495

Table A-1 (continued)

Explanatory Variable	Age Group						
	17-24 track 2	25-32 track 1	25-32 track 2	33-40	41-48	49-56	57-64
Panel C Labor Market Inequity - Blacks							
E ₆₉	-	-	-.2700	.5451*	.6990*	.9221*	.8851*
EDUC	312.9*	405.5*	384.5*	180.3**	139.6*	57.84	131.4**
DAD	-115.0**	74.91	323.9	-33.44	109.5	-47.54	-1114*
SOUTH	-728.6*	541.3	920.3	635.4	-160.4	1486*	-3904*
FARM	-763.6*	-390.2	1477	-73.40	1478*	-1346	-2945
AGE	265.3*	46.25	94.92	-71.77	312.0*	-1.26	7.01
CONSTANT	-4292*	-1356	-2725	3776	-14043	1070	10612
n	230	175	49	104	104	91	54
$\bar{R}^2$	.3492	.1111	.4935	.2632	.6813	.7190	.4889

* Coefficient significant at the .05 level.

**Coefficient significant at the .10 level but not at the .05 level.

Table A-2 Estimated Parameters for Educational Attainment Process

Explanatory Variable	Age Group and Track			
	17-24 track 1	17-24 track 2	25-32 track 1	25-32 track 2
DAD	.0287*	.1376*	.2325*	.3469*
SOUTH	-.0177	-.2408*	-.2137	-.5439*
FARM	-.0644	-.1171	.0504	.9281*
AGE	.7371*	.3641*	.2594*	-.0091
CONSTANT	-3.444	2.947	4.449	9.710
n	979	649	508	207
$\bar{R}^2$	.5913	.2280	.1884	.1592

Table A-3 (continued)

Year of entry and race	Explanatory Variable*					
	EQUITY		INEQUITY		SOUTH	FARM
	EDUC**	DAD	EDUC**	DAD		
2025						
White	13.77	11.19	13.77	11.19	.28	.04
Black	13.51	10.39	12.99	8.49	.44	.043
2033						
White	13.80	11.31	13.80	11.31	.28	.04
Black	13.58	10.67	13.01	8.56	.43	.043
2041						
White	13.84	11.44	13.84	11.44	.28	.04
Black	13.65	10.92	13.04	8.64	.42	.043
2049						
White	13.87	11.56	13.87	11.56	.28	.04
Black	13.72	11.15	13.06	8.73	.42	.043
2057						
White	13.91	11.69	13.91	11.69	.28	.04
Black	13.77	11.34	13.09	8.82	.41	.043
2065						
White	13.94	11.82	13.94	11.82	.28	.04
Black	13.82	11.53	13.11	8.90	.41	.043
2073						
White	13.96	11.96	13.96	11.96	.28	.04
Black	13.87	11.69	13.14	8.98	.40	.043
2081						
White	14.01	12.08	14.01	12.08	.28	.04
Black	13.91	11.86	13.16	9.07	.40	.043
2089						
White	14.05	12.21	14.05	12.21	.28	.04
Black	13.96	12.01	13.19	9.16	.38	.043
2096						
White	14.08	12.35	14.08	12.35	.28	.04
Black	14.00	12.17	13.21	9.24	.38	.043

* AGE at time of entry is 20.543, averaging across tracks.

**EDUC shown is value attained by age 25-32.

Table A-4 Projected Black-White Earnings Ratios Under Labor Market Inequity
by Age Group and Period^a

Year	Age Group					
	17-24	25-32	33-40	41-48	49-56	57-64
1977	.825	.808	.699	.654	.826	.758
1985	.809	.764	.728	.760	.823	1.016
1993	.808	.822	.684	.697	.887	.968
2001	.812	.838	.710	.671	.865	1.115
2009	.812	.832	.715	.709	.812	1.071
2017	.812	.833	.710	.714	.849	1.120
2025	.811	.836	.707	.706	.856	.988
2033	.811	.839	.706	.705	.850	.951
2041	.812	.840	.705	.705	.847	.966
2049	.810	.841	.703	.706	.846	.960
2057	.811	.842	.700	.705	.845	.950
2065	.809	.843	.699	.704	.842	.937
2073	.810	.845	.697	.703	.840	.931
2081	.808	.846	.695	.702	.839	.926
2089	.808	.848	.693	.702	.837	.917
2096	.807	.849	.692	.701	.836	.910
2105	.807	.850	.689	.700	.834	.902

^aWithin cohort projections are across northwest-southeast diagonals.

Entries above and to the right of the dotted line refer to men who entered the labor market prior to racial equity. Entries below and to the left of the dotted line refer to men who entered the labor market subsequent to racial equity.

The Center for Human Resource Research

The Center for Human Resource Research is a policy-oriented research unit based in the College of Administrative Science of The Ohio State University. Established in 1965, the Center is concerned with a wide range of contemporary problems associated with human resource development, conservation and utilization. The personnel include approximately twenty senior staff members drawn from the disciplines of economics, education, health sciences, industrial relations, management science, psychology, public administration, social work and sociology. This multidisciplinary team is supported by approximately 50 graduate research associates, full-time research assistants, computer programmers and other personnel.

The Center has acquired pre-eminence in the fields of labor market research and manpower planning. The National Longitudinal Surveys of Labor Force Behavior have been the responsibility of the Center since 1965 under continuing support from the United States Department of Labor. Staff have been called upon for human resource planning assistance throughout the world with major studies conducted in Bolivia, Ecuador and Venezuela, and recently the National Science Foundation requested a review of the state of the art in human resource planning. Senior personnel are also engaged in several other areas of research including collective bargaining and labor relations, evaluation and monitoring of the operation of government employment and training programs and the projection of health education and facility needs.

The Center for Human Resource Research has received over one million dollars annually from government agencies and private foundations to support its research in recent years. Providing support have been the U.S. Departments of Labor, State, and Health, Education and Welfare; Ohio's Health and Education Departments and Bureau of Employment Services; the Ohio cities of Columbus and Springfield; the Ohio AFL-CIO; and the George Gund Foundation. The breadth of research interests may be seen by examining a few of the present projects.

The largest of the current projects is the National Longitudinal Surveys of Labor Force Behavior. This project involves repeated interviews over a fifteen year period with four groups of the United State population; older men, middle-aged women, and young men and women. The data are collected for 20,000 individuals by the U.S. Bureau of the Census, and the Center is responsible for data analysis. To date dozens of research monographs and special reports have been prepared by the staff. Responsibilities also include the preparation and distribution of data tapes for public use. Beginning in 1979, an additional cohort of 12,000 young men and women between the ages of 14 and 21 will be studied on an annual basis for the following five years. Again the Center will provide analysis and public use tapes for this cohort.

The Quality of Working Life Project is another ongoing study operated in conjunction with the cities of Springfield and Columbus, in an attempt to improve both the productivity and the meaningfulness of work for public employees in these two municipalities. Center staff serve as third party advisors, as well as researchers, to explore new techniques for attaining management-worker cooperation.

(continued on inside of back cover)

A third area of research in which the Center has been active is manpower planning both in the U.S. and in developing countries. A current project for the Ohio Advisory Council for Vocational Education seeks to identify and inventory the highly fragmented institutions and agencies responsible for supplying vocational and technical training in Ohio. These data will subsequently be integrated into a comprehensive model for forecasting the State's supply of vocational and technical skills.

Another focus of research is collective bargaining. In a project for the U.S. Department of Labor, staff members are evaluating several current experiments for "expedited grievance procedures," working with unions and management in a variety of industries. The procedural adequacies, safeguards for due process, cost and timing of the new procedure are being weighed against traditional arbitration techniques.

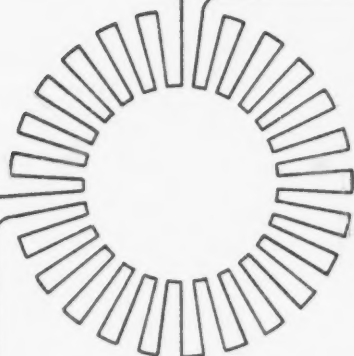
Senior staff also serve as consultants to many boards and commissions at the national and state level. Recent papers have been written for the Joint Economic Committee of Congress, The National Commission for Employment and Unemployment Statistics, The National Commission for Manpower Policy, The White House Conference on the Family, the Ohio Board of Regents, the Ohio Governor's Task Force on Health, and the Ohio Governor's Task Force on Welfare.

The Center maintains a working library of approximately 9,000 titles which includes a wide range of reference works and current periodicals. Also provided are computer facilities linked with those of the University and staffed by approximately a dozen computer programmers. They serve the needs of in-house researchers and users of the National Longitudinal Survey tapes.

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Center for Human Resource Research

The Inheritance of Earnings and Wealth

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The Inheritance of Earnings and Wealth

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An earlier version of this paper was presented at the annual conference of the Western Economic Association, San Diego, June 15-19, 1980. This paper was prepared under a contract with the Employment and Training Administration, U.S. Department of Labor, under the authority of the Comprehensive Employment and Training Act. Researchers undertaking such projects under Government sponsorship are encouraged to express their own judgments. Interpretations or viewpoints stated in this document do not necessarily represent the official position or policy of the Department of Labor. I would like to acknowledge the advice and assistance of Tim Brown, Tom Daymont, Henry Levin, Nan Maxwell, and members of a workshop at the Center for Human Resource Research.

The issue of equality of opportunity has generated considerable research effort in the social science community. Most of this effort has attempted to answer two related questions: How strong is the influence of family background on adult economic status? How is inequality transmitted from one generation to another? The answers to these questions vary greatly and have generated considerable debate among social scientists. The present research adds to this debate by analyzing an important dimension of both family background and adult economic status--wealth.

Few people deny that adult standing is influenced to some degree by one's social origins. The strength of that influence, however, remains unclear. Some researchers claim that family background explains only a small amount of the variation in adult status (usually indexed by earnings). These smaller estimates range from 3 to 20 percent (Sewell and Hauser, 1975; Jencks et al., 1972; Corcoran, Jencks, and Olneck, 1976). Others claim the influence is much stronger. After considering genetic factors, inadequate measures of social background, and measurement errors in background variables, researchers in this latter group estimate the influence of family background to range from 30 to 50 percent (Bowles, 1972; Taubman, 1976; Brittain, 1977). There are racial differences in these estimates--the influence of family background on the economic status of blacks appears to be weaker than for whites, although these differences are smaller in more recent cohorts (Featherman and Hauser, 1976).

Considerable disagreement also exists concerning how family

background influences adult economic status. Some observers claim that the effects of family background are largely indirect, operating through its effects on ability and schooling (Duncan, Featherman and Duncan, 1972; Featherman and Hauser, 1976). These observations appear to hold for both whites and blacks. Others say the influence is largely direct (Brittain, 1977; Bowles, 1972). The aspects of family background that exert this influence are in dispute as well. Most attention has focused on environmental factors, indexed by measures of father's and mother's education, father's occupational status, and household composition (e.g., number of siblings). These aspects of family background are largely social and are thought to influence a child's early cognitive development (human capital), motivation, values, and aspirations.¹ Recent studies of twins suggest that the genetic component of family background is also important and may, in fact, overshadow the environmental component (Taubman, 1976).

One aspect of family background that has received scant attention is parental wealth. Most often this component of family background is overlooked because the data used to investigate this issue do not contain any (or adequate) information on the financial position of a person's parents. Although other components of family background, such as father's education, are undoubtedly related to a family's financial position, excluding wealth could not only overstate the influence of other environmental components, but also understate the total influence that family background exerts on adult economic status

(Bowles, 1972). The existing research that does include measures of family wealth (usually family income) shows that the financial aspect of family background exerts both direct and indirect effects on adult status (Bowles, 1972; Parsons, 1975; Brittain, 1977; Hauser and Daymont, 1977).

Several explanations could account for the direct influence of parental wealth: parents could directly transfer physical capital to their children; children from well-to-do families may have better connections for locating and securing well-paying jobs (Granovetter, 1974); wealthy parents could subsidize their children's job search which could also lead to higher earnings and wealth; wealthy parents could instill a "taste" in their children for higher earnings and material wealth (Bowman, 1976); wealthy parents could instill in their children the value of saving--the foregoing of present consumption for future well-being; finally, the acquisition of material wealth could come about through assortative mating--children of wealthy parents marrying into other wealthy families (Brittain, 1977; Meade, 1976). The indirect influence of parental wealth, operating through schooling, could reflect the ability of wealthy parents to finance their children's education. Just as with other aspects of family background, identifying the specific mechanisms through which parental wealth operates is a rather formidable task. But whatever mechanisms explain its influence, parental wealth constitutes an important aspect of family background largely ignored in the literature.

Wealth is important not only as a determinant of adult

attainment, but as a measure of economic status itself. Most research on inequality has focused on adult earnings or occupational status, not wealth. This focus exists predominantly because of inadequate data, not because of theoretical disinterest. In fact, wealth may be a more accurate and conceptually appealing measure of economic status and, consequently, a more appropriate measure of inequality (Campbell and Henretta, 1980). It is well known that the distribution of wealth is more unequal than the distribution of earnings (Blinder, 1974). Furthermore, earnings are subject to considerable variations from year to year, making them a rather unstable measure of economic well-being (Kohen, Parnes, and Shea, 1975). Using earnings as a measure of economic status may also understate the degree to which inequality is transmitted from generation to generation. And finally, although differences in human capital may account for much of the observed differences in earnings (Mincer, 1974), differences in wealth are more likely to arise because of the direct transfer of physical capital from one generation to another (Osman, 1977; Sahota, 1978).

The present study examines the role that wealth plays in transmitting economic inequality from one generation to another, particularly between parents and their sons. Two aspects are considered: the influence of parental wealth and other aspects of family background on son's earnings; and the influence of total family background, including parental wealth, on son's wealth. Since previous research has shown that the influence of family background varies by race groups, separate analyses are

performed on whites and blacks.

I. THE MODEL

The conceptual framework of this research is based on the widely held belief that family background influences adult economic status both directly and indirectly. The indirect effects appear to operate through a number of intervening mechanisms, the most important being schooling. There is less agreement concerning the importance of other factors. The role of ability has generated considerable debate (Griliches, 1976; 1977). More elaborate models attempt to measure the effects of other intervening variables--such as aspirations and peer influences--in order to further disentangle the influence of family background (Sewell and Hauser, 1975).

The intent of the present study is to focus on the wealth component of both family background and adult economic status. A rather simple recursive model is used to specify the relationship between background and status:

$$\ln Y = a_1 + b_1 S + c_1 A + d_1 F + e_1 X + u_1, \quad (1)$$

$$S = a_2 + c_2 A + d_2 F + u_2, \quad (2)$$

$$A = a_3 + d_3 F + u_3, \quad (3)$$

where Y is earnings, S is schooling, A is ability, F is a vector of family background characteristics (including parental wealth), X is a vector of control variables such as experience, region, and marital status, and u_1 , u_2 , and u_3 are disturbance terms. These models assume a linear (or semilog, in the case of earnings) relationship between the dependent and independent

variables. A further assumption, that the disturbance terms are uncorrelated (that is, $E(u_1u_2) = E(u_1u_3) = 0$), means the system of equations is recursive, and unbiased estimators of the coefficients can be obtained with ordinary least squares. This latter assumption is unnecessary to produce unbiased, reduced-form estimates of the total effects of family background on earnings:²

$$\ln Y = a_4 + d_4F + u_4. \quad (4)$$

Wealth, as another measure of adult economic status, is assumed to follow the same structural relationships as earnings except, of course, that earnings will also influence the accumulation of wealth. These relationships are captured in the following model:

$$\ln W = a_5 + b_5S + c_5A + d_5F + e_5X + f_5\ln Y + u_5, \quad (5)$$

where W is wealth and the remainder of the variables are the same as in equation (1). Again unbiased estimates in the structural equations require $E(u_1u_5) = 0$, but the assumption is not required to obtain unbiased, reduced-form estimates:

$$\ln W = a_6 + d_6F + u_6. \quad (6)$$

This series of equations is used to examine the total effect of family background, including parental wealth, on adult economic status, where status is measured by wealth as well as the traditional measure of earnings.³

II. DATA AND VARIABLES

Data for this study come from a matched subsample of fathers and sons constructed from two cohorts in the National

Longitudinal Surveys of Labor Market Experience (NLS)--older men who were 45-59 years of age in 1966 and younger men who were 14-24 years of age in 1966.⁴ Both cohorts are based on national samples of the civilian noninstitutional population of males for each age group, with blacks overrepresented. In order to qualify as part of the subsample, the father had to report the son in his household at the time of interview and the son, when interviewed, had to report the father in his household. Ages were matched using household records; the son's age reported on the father's household record had to fall within one year of the age the son reported, and the father's age on the son's household record had to fall within one year of the age the father reported.

This procedure resulted in a subsample of 1,097 matched fathers and sons out of approximately 5,000 respondents in each of the original cohorts. The sample was further restricted to young men who were interviewed in 1976 (the last survey for which data are currently available) and not enrolled in school, leaving 694 valid cases. Of these, 542 cases had valid responses for the two key variables, parental wealth in 1966 and son's wealth in 1976.⁵ Finally, missing values on the other variables reduced the sample to 482 respondents--366 whites, 109 blacks, and 7 other races. Since one of the aims of the research is to test for racial differences in the structural relationships between family background and economic status, estimates were based on separate analyses for whites and blacks.

The major advantage of this data set is that it provides information on a key, and perhaps essential, component of

economic status--wealth. For both fathers and sons, wealth is ascertained in several survey years through a series of questions on the net value of family assets, including the respondent's home, real estate and business, savings, and outstanding debt.⁶ These data, especially parental wealth, are generally unavailable from other data sources. Most other studies that examine family background rely on respondents' recalling information about their parents' education, occupation, and household environment. While this procedure may yield accurate information about these particular aspects of family background (Borus and Nestel, 1973), it is unlikely to produce an accurate estimate of parental wealth.⁷

There are limitations to the data, however. One pertains to the representativeness of the sample and, therefore, the ability to generalize the results. Because of the ages of the two cohorts used to construct the subsample, it is unlikely that the father-son subsample is representative of fathers and sons in the population as a whole.⁸ In order to get some idea of the sample's representativeness, the fathers and sons were compared to the larger samples of older and younger men in the NLS. The means and standard deviations for all the variables used in the regression analysis are shown in Table 1, together with comparable figures from the older and younger men's cohorts. Figures for whites and blacks are shown separately. Table 2 contains detailed descriptions of all the variables. The comparisons show that the fathers and sons do not differ greatly from the other older and younger men in the NLS cohorts. Sons,

Table 1 Means (and Standard Deviations) of Father-Son Subsample and Comparisons with NLS Cohorts: White and Black Males, 1976

Variable	Whites		Blacks	
	Young men	Father-son	Young men	Father-son
N	1946	366	371	109
LNASSETS	1.9 (1.6)	1.7 (1.5)	0.6 (1.1)	0.6 (1.0)
LNEARN	9.3 (0.7)	9.3 (0.7)	8.8 (0.8)	8.8 (0.9)
EDUC	13.7 (2.5)	14.1 (2.3)	12.2 (2.8)	12.3 (2.9)
KWW	35.6 (7.6)	35.4 (7.4)	26.7 (8.6)	26.6 (8.9)
DADED	10.4 ^a (3.4)	10.7 (3.2)	7.2 ^a (4.0)	6.9 (3.7)
CUL	2.5 (0.8)	2.6 (0.7)	1.6 (1.1)	1.6 (1.1)
SIB	2.8 (2.1)	2.8 (2.1)	5.1 (3.1)	5.1 (3.0)
LNMASS	2.4 ^b (1.5)	3.0 (1.5)	0.9 ^b (1.1)	1.3 (1.3)
MAGE	51.4 ^b (4.3)	50.0 (3.9)	51.6 ^b (4.2)	50.4 (3.6)
SELFAD	0.20 ^b (0.44)	0.21 (0.41)	0.10 ^b (0.29)	0.12 (0.33)
AGE	28.2 (3.2)	27.5 (2.5)	27.6 (3.1)	27.2 (2.7)
XPSEXP	0.53 (0.23)	0.57 (0.21)	0.51 (0.23)	0.53 (0.23)
SOUTH	0.31 (0.46)	0.27 (0.44)	0.70 (0.46)	0.68 (0.47)
MAR	0.75 (0.44)	0.69 (0.46)	0.62 (0.49)	0.53 (0.50)
HEALTH	0.08 (0.27)	0.08 (0.27)	0.06 (0.25)	0.10 (0.30)
HOME	0.56 (0.50)	0.49 (0.50)	0.34 (0.47)	0.30 (0.46)
SELF	0.11 (0.31)	0.07 (0.26)	0.04 (0.35)	0.04 (0.19)

NOTE: The Young Men's sample and the Father-Son subsample were restricted to young men who were interviewed in 1976 and not enrolled in school. See Table 2 for a description of all variables.

^aCalculated from young men's data. ^bCalculated from the older men's sample.
N = 2756 for whites. N = 1203 for blacks.

Table 2 Description of Variables

Variables	Description
LNASSETS	Natural logarithm of son's net family assets/1000, 1976.
LNEARN	Natural logarithm of son's total annual earnings, 1976.
EDUC	Son's years of schooling completed, 1976.
KWW	Son's total score on "Knowledge of the Working World Test," 1966. ^a
DADED	Father's years of schooling completed, 1966.
CUL	Availability of newspapers, magazines and library cards in parents' household, 1966.
SIB	The number of son's siblings, 1966.
LNMASS	Natural logarithm of father's net family assets/1000, 1966.
MAGE	Father's age, 1966.
SELFAD	A dummy variable = 1 if father is self-employed, 1966.
AGE	Son's age, 1976.
XPSEXP	Exponent ($-.1 \times \text{PSEXP}$), where PSEXP is years since son left school, 1976.
SOUTH	A dummy variable = 1 if son's current residence is in the South, 1976.
MAR	A dummy variable = 1 if son is married with spouse present, 1976.
HEALTH	A dummy variable = 1 if son has a health problem that limits work, 1976.
HOME	A dummy variable = 1 if son owns his own home, 1976.
SELF	A dummy variable = 1 if son is self-employed, 1976.

^aSee Parnes, Miljus, and Spitz (1970: 120-121).

both white and black, are comparable in age to their respective counterparts in the young men's cohort. The fathers are somewhat younger than men in the 45-59 year old age group generally, but this simply reflects the age at which they had their families (see footnote 8). The financial variables, son's assets (LNASSETS), son's earnings (LNEARN), and father's assets (LNMASST), are also similar to whites' both in the father-son subsample and the full sample of young men, while son's and father's assets are substantially lower for blacks than whites in both groups.

The ages of the sons (24-34 in 1976) and the ages of their fathers (45-59 in 1966) limits the analysis in another way. It restricts comparisons of father's wealth rather late in their life cycle to their son's wealth early in their life cycle, before they have accumulated much wealth.⁹ Moreover, this limitation precludes an analysis of one important measure of wealth transfer--inheritance--because most of the fathers are still alive in 1976.

In spite of these limitations, the data provide a unique opportunity to examine the relationship between father's wealth and son's wealth. The relationship is examined with the structural equations described in the previous section, using a series of variables which are now described.

The dependent variables are wealth, earnings, schooling, and ability. Wealth (LNASSETS) is the logarithm of total net family assets (in \$1000) in 1976.¹⁰ Earnings (LNEARN) is the logarithm of total annual earnings in 1976.¹¹ Schooling (EDUC) represents

the number of years of regular schooling completed by 1976. Ability (KWW) is measured with the score from a test on the "knowledge of the world of work."¹² Although not an ideal measure, previous research with the NLS data has shown this to be a good proxy for mental ability when used in earnings equations (Griliches, 1976).¹³

Family background is measured with a series of variables--parental wealth, father's education, a measure of culture in the household, and the number of siblings. Parental wealth (LNMASS) is the logarithm of father's net family assets (in \$1000) in 1966 (1976 dollars).¹⁴ Father's education (DADED) represents the father's years of regular schooling completed as of 1966. Culture (CUL) is a cumulative index measuring the availability of newspapers, magazines, and library cards in the parent's household when the son was 14 years old. Siblings (SIB) is the number of siblings the son reported in 1966.

The remainder of the variables used in the analysis consist of various controls characterizing the son in 1976--his age (AGE), a nonlinear form of postschool experience ($XPSEXP = \text{exponent} - 0.1 \times \text{years since leaving school}$),¹⁵ and binary variables for a health problem that limits work (HEALTH), married with spouse present (MAR), and current residence in the South (SOUTH).¹⁶ In some estimates, additional dummy variables were introduced, representing home ownership (HOME), son's self-employment (SELF), and father's self-employment (SELFAD). These descriptions are summarized in Table 2.

Table 3 Regression Estimates for Ability, Schooling, and Earnings: White and Black Males, 1976

Sample (N) Dependent variable	Coefficients (absolute t-ratios)					Other variables in equations	R ² (adj)
	EDUC	KWW	DADED	CUL	SIB		
1. Whites (N = 366)							
1.1 KWW	--	--	0.408 (3.26)	1.523 (2.87)	-1.006 (5.92)	0.013 (0.05)	.175
1.2 EDUC	--	0.088 (6.02)	0.179 (5.07)	0.504 (3.37)	-0.175 (3.53)	0.152 (2.10)	.359
1.3 LNEARN	0.091 (4.26)	0.007 (1.30)	-0.013 (1.10)	0.044 (0.85)	0.002 (0.09)	--	.108
1.4 LNEARN	0.087 (4.12)	0.007 (1.35)	-0.023 (1.87)	0.021 (0.40)	0.002 (0.10)	0.077 (3.10)	.129
1.5 LNEARN	--	--	-0.008 (0.63)	0.079 (1.50)	-0.008 (0.47)	0.074 (2.89)	.047
2. Blacks (N=109)							
2.1 KWW	--	--	0.541 (2.64)	2.88 (4.07)	-0.722 (3.15)	0.336 (0.57)	.431
2.2 EDUC	--	0.133 (4.17)	0.091 (1.31)	0.198 (0.79)	-0.109 (1.39)	0.368 (1.92)	.431
2.3 LNEARN	0.090 (2.15)	0.011 (0.87)	0.009 (0.37)	0.081 (0.95)	0.003 (0.12)	--	.261
2.4 LNEARN	0.085 (2.01)	0.011 (0.91)	0.007 (0.27)	0.069 (0.79)	0.006 (0.21)	0.047 (0.67)	.257
2.5 LNEARN	--	--	0.033 (1.29)	0.109 (1.24)	0.004 (0.15)	0.107 (1.47)	.105

NOTE: Estimates are based on a matched sample of fathers and sons from the National Longitudinal Surveys of Labor Market Experience. The sample was restricted to young men who were interviewed in 1976 and not enrolled in school. See Table 2 for a description of all variables.

III. THE EFFECT OF FAMILY BACKGROUND ON EARNINGS

The first part of the analysis examines the influence of parental wealth and other family background characteristics on earnings. Both structural and reduced-form estimates are derived. Separate estimates for white and black males appear in Table 3.

Ability (KWW) is not influenced by parental wealth (equations 1.1 and 2.1), but it is affected by the social environment of the family--father's education (DADED) and the availability of reading material in the home (CUL) exert a positive influence, while ability is inversely affected by the number of siblings (SIB).¹⁷ Although this relationship is similar for both whites and blacks, family background characteristics explain much more of the variance in the ability of blacks than whites (.431 versus .175).

Parental wealth (LNMASS) has a positive effect on years of schooling (equations 1.2 and 2.2) even after controlling for ability and other family background characteristics. For whites, a 100 percent improvement in parental wealth increases schooling by about .1 years; for blacks it would increase schooling by about .3 years. The other components of family background also influence years of schooling for whites but, for blacks, parental wealth is the only significant influence. The positive effect of wealth suggests that the amount of schooling completed may depend, in part, on the ability of parents to finance their children's education.

In the structural earnings equations for whites (equations

1.3 and 1.4), parental wealth (LNMASS) has a direct and independent effect on earnings, even after controlling for schooling (EDUC), ability (KWW), and other family background characteristics. A 100 percent improvement in parental wealth is associated with approximately an 8 percent increase in earnings. The coefficient of ability is not significant, while the schooling coefficient is significant and of comparable magnitude to other estimates (Mincer, 1974; Griliches, 1976). Curiously, the coefficient for father's education is significant and negative. Other background variables (CUL and SIB) were not statistically significant.

For blacks, no family background variables have a statistically significant influence on earnings after controlling for schooling and ability (equation 2.3 and 2.4). In fact, only the schooling coefficient is significant.

The reduced form estimates (equations 1.5 and 2.5) show that family background variables as a group explain only a small amount of the variance in earnings for both whites and blacks (.047 and .105, respectively).¹⁸ Nonetheless, based on the means and standard deviations in Table 1, an increase of one standard deviation in parental wealth increases earnings a greater amount than corresponding increases in any other family background variable.

These estimates are consistent with those derived in other studies that examine the influence of parental wealth (or income) on earnings (Bowles, 1972; Brittain, 1977; Hauser and Daymont, 1977).¹⁹ In each of these studies, parental wealth had a strong

effect on schooling as well as a direct, independent influence on earnings after controlling for schooling.

IV. THE EFFECT OF FAMILY BACKGROUND ON WEALTH

The recursive model used to examine the influence of parental wealth and other family background characteristics on wealth is similar to the previous model, except earnings now serve as an intervening variable in the determination of wealth. Again both structural and reduced-form estimates are derived. Estimates for whites and blacks appear in Table 4.

The estimates for white males, excluding earnings (equation 3.1), show the coefficients for schooling and parental wealth are both significant, while ability and other background variables are not.²⁰ A 100 percent improvement in parental wealth is associated with about a 32 percent increase in son's wealth. A year of schooling is associated with about a 12 percent increase in wealth. When earnings is introduced (equation 3.2), the coefficients for schooling and parental wealth decrease to .08 and .28, respectively, while the coefficient for earnings is large (.50) and significant. When additional variables are introduced, controlling for home ownership (HOME), son's self-employment (SELF), and father's self-employment (SELFAD), the coefficient for parental wealth declines further. These coefficients will be discussed shortly. Finally, the reduced-form estimates show the total effect of family background on wealth, with parental wealth being the most important component. The amount of variance in wealth explained by family

Table 4 Regression Estimates for Family Wealth: White and Black Males, 1976

Sample (N) Dependent variable	Coefficients (absolute t-ratios)					Other variables in equation		R ² (adj)
	LNEARN	EDUC	KWW	DADED	CUL	SIB	LNMASS	
3. Whites (N=366)								
3.1 LNASSETS	--	0.120 (2.61)	0.018 (1.53)	-0.037 (1.37)	-0.052 (0.46)	-0.029 (0.78)	0.322 (5.97)	HEALTH, MAR, SOUTH, XPSEXP .188
3.2 LNASSETS	0.498 (4.43)	0.076 (1.67)	0.014 (1.25)	-0.026 (0.96)	-0.062 (0.56)	-0.030 (0.82)	0.284 (5.33)	HEALTH, MAR, SOUTH, XPSEXP .228
3.3 LNASSETS	0.282 (2.77)	0.092 (2.27)	0.012 (1.24)	-0.024 (1.01)	-0.007 (0.07)	0.001 (0.03)	0.276 (5.85)	HEALTH, MAR, SOUTH, XPSEXP, HOME .398
3.4 LNASSETS	0.355 (3.66)	0.079 (2.07)	0.009 (0.94)	-0.013 (0.59)	0.052 (0.57)	-0.013 (0.41)	0.191 (3.93)	HEALTH, MAR, SOUTH, XPSEXP, HOME, SELF, SELFAD .466
3.5 LNASSETS	--	--	--	-0.025 (0.96)	0.088 (0.79)	-0.027 (0.74)	0.325 (5.91)	AGE .140
4. Blacks (N=109)								
4.1 LNASSETS	--	-0.001 (0.00)	0.020 (1.44)	-0.018 (0.65)	0.038 (0.38)	-0.005 (0.17)	0.091 (1.14)	HEALTH, MAR, SOUTH, XPSEXP .212
4.2 LNASSETS	0.157 (1.36)	-0.014 (0.28)	0.018 (1.32)	-0.019 (0.69)	0.027 (0.27)	-0.006 (0.20)	0.083 (1.05)	HEALTH, MAR, SOUTH, XPSEXP .218
4.3 LNASSETS	0.121 (1.39)	-0.019 (0.50)	0.010 (0.99)	-0.002 (0.09)	0.010 (0.14)	0.004 (0.18)	0.070 (1.17)	HEALTH, MAR, SOUTH, XPSEXP, HOME .554
4.4 LNASSETS	0.130 (1.39)	-0.018 (0.47)	0.009 (0.87)	0.000 (0.03)	0.016 (0.21)	0.001 (0.03)	0.068 (1.11)	HEALTH, MAR, SOUTH, XPSEXP, HOME, SELF, SELFAD .547
4.5 LNASSETS	--	--	--	0.001 (0.04)	0.061 (0.61)	-0.016 (0.50)	0.114 (1.39)	AGE .081

NOTE: Estimates are based on a matched sample of fathers and sons from the National Longitudinal Surveys of Labor Market Experience. The sample was restricted to young men who were interviewed in 1976 and not enrolled in school. See Table 2 for a description of all variables.

background is more than twice that explained in earnings (.120 versus .047).

For blacks, parental wealth does not exert any direct influence on wealth after controlling for its effects on schooling and earnings. This does not necessarily mean that family background, and particularly parental wealth, is not as strong an influence on the economic status of blacks as it is for whites. Average wealth among blacks, both parents and sons, is less than half that of whites (see Table 1). The strong effect of parental wealth on son's wealth which was observed for whites may indicate that parents have to be above a certain level of wealth before they can affect the financial position of their children.

In addition to the family background, schooling, and ability variables, a number of control variables were used in the structural equations. The coefficients of all variables for equations 1.4 and 2.4 from Table 3 (with the addition of SELF and SELFDAD) and equations 3.4 and 4.4 from Table 4 appear in Table 5. The effects of the control variables on earnings and wealth were generally as expected. For both whites and blacks, the presence of a health problem (HEALTH) has a negative effect on earnings, but not on assets. Similarly, marriage (MAR) has a positive effect on the earnings of both whites and blacks, but no significant effect on assets. For whites but not blacks, the coefficient for south (SOUTH) is negative and significant. Experience, represented in a negative exponential form (XPSEXP), has a positive and significant effect on both earnings and wealth

Table 5 Regression Estimates for Earnings and Wealth: White and Black Males, 1976

Variable	Whites		Blacks	
	LNEARN (1.4)	LNASSETS (3.4)	LNEARN (2.4)	LNASSETS (4.4)
EDUC	0.088 (4.21)	0.079 (2.07)	0.077 (1.90)	-0.018 (0.47)
KWW	0.008 (1.56)	0.009 (0.94)	0.014 (1.22)	0.009 (0.87)
HEALTH	-0.256 (2.03)	0.181 (0.80)	-0.599 (2.57)	0.090 (0.40)
MAR	0.159 (2.20)	0.011 (0.07)	0.274 (1.89)	0.029 (0.18)
SOUTH	-0.174 (2.22)	-0.474 (3.37)	-0.253 (1.57)	-0.100 (0.66)
XPSEXP	-0.862 (4.40)	-0.745 (2.08)	-0.901 (2.16)	0.085 (0.21)
DADED	-0.020 (1.60)	-0.013 (0.59)	0.004 (0.16)	0.000 (0.03)
CUL	0.016 (0.32)	0.052 (0.57)	0.035 (0.42)	0.016 (0.21)
SIB	0.003 (0.02)	-0.013 (0.41)	-0.011 (0.39)	0.001 (0.03)
LNMASS	0.071 (2.61)	0.191 (3.93)	0.069 (1.05)	0.068 (1.11)
HOME	--	1.470 (10.74)	--	1.483 (8.48)
SELF	-0.368 (2.83)	1.502 (6.41)	-1.359 (3.53)	0.018 (0.04)
SELFAD	0.155 (1.69)	0.249 (1.51)	-0.165 (0.71)	0.155 (0.72)
LNEARN	--	0.355 (3.66)	--	0.130 (1.39)
Constant	8.126	-3.858	8.035	-1.206
R ² (adj)	.147	.466	.338	.547

NOTE: Estimates are based on a matched sample of fathers and sons from the National Longitudinal Surveys of Labor Market Experience. The sample was restricted to young men who were interviewed in 1976 and not enrolled in school. See Table 2 for a description of all variables. Absolute t-ratios are in parentheses.

for whites, but for blacks the coefficient is only significant in the earnings equation.

The dummy variables indicating home ownership (HOME), son's self-employment (SELF), and father's self-employment (SELFAD) give some insight into other factors affecting earnings and wealth. Home ownership is an important component of wealth for young men. In fact, for blacks that one variable accounts for 31 percent of the variance in wealth.²¹ Young white and black males who are self-employed have significantly lower earnings than other young men. But self-employed whites also have significantly higher assets. This could simply indicate that the self-employed forego present earnings and invest money in business assets. Or it could suggest that wealthy parents transfer physical wealth to their sons which, in turn, increases their son's assets and generates earnings.²² For example, wealthy parents could invest in their son's business.

What could account for the influence of parental wealth on the earnings of young white males? Several explanations were suggested in the introduction to this paper--direct transfers of physical capital; connections for finding well-paying jobs; subsidies for job search; tastes and values favoring the accumulation of assets; social contacts resulting in marriage into well-to-do families.²³ All of these conjectures are consistent with the present findings, but none can be proven to the exclusion of the others. The NLS data do allow us to explore one possible mechanism relating parent's wealth to son's wealth--the direct transfer of material wealth. Two additional financial

variables were constructed from the NLS data. One measures the total amount of financial assistance received by young men from their parents between 1966 and 1976 (LNMONEY);²⁴ the other is the amount of any inheritance that the young men expect to receive from their parents, as of 1976 (LNINHER). These two variables were regressed on parental wealth (LNMASS). The coefficients appear in Table 6. The results suggest that physical wealth is transferred directly from parents to their offspring, both through gifts and inheritance.²⁵

V. SUMMARY AND POLICY IMPLICATIONS

This paper examined the role of wealth in explaining the relationship between family background and adult economic status for white and black males. Wealth was treated both as a component of family background and as a measure of adult economic status. As a financial component of family background, parental wealth exerts an influence on schooling that is independent of other, social components of family environment. This influence is stronger for black males than white males. For white males, parental wealth also has a direct effect on earnings, even after controlling for its effects on schooling. For black males, however, there is no direct effect of parental wealth on earnings. But this may simply reflect the lower wealth status of black parents compared to white parents. Also for white males, parental wealth has a direct effect on son's wealth after controlling for its effects on schooling and earnings. And the total effect of parental wealth on the wealth of white males is

Table 6 Regression Estimates and Means of Financial Support and Expected Inheritance: White and Black Males, 1976

Sample (N) Dependent Variable	Mean (standard deviation)	Constant	Coefficient (absolute t-ratio) LNMASS	R ² (adj)
5. Whites (N = 366)				
5.1 LNMONEY	1.5 (2.8)	0.770	0.241 (2.44)	0.013
5.2 LNINHER	3.3 (4.6)	1.941	0.441 (2.78)	0.018
6. Blacks (N = 109)				
6.1 LNMONEY	0.3 (1.5)	0.118	0.168 (1.51)	0.012
6.2 LNINHER	1.2 (3.2)	0.682	0.619 (2.64)	0.052

NOTE: Estimates are based on a matched sample of fathers and sons from the National Longitudinal Surveys of Labor Market Experience. The sample was restricted to young men who were interviewed in 1976 and not enrolled in school. LNMONEY = the logarithm of total financial assistance received by the young man from his parents between 1966 and 1976; LNINHER = the logarithm of the amount of expected inheritance from parents, 1976; and LNMASS = the logarithm of parent's total net family assets (in \$1000) in 1966 (in 1976 dollars).

much stronger than its effect on earnings.

What do these results suggest about government policies designed to promote equality of opportunity? Consistent with previous research, family background has a direct effect on educational attainment which, in turn, directly affects adult economic status. Consequently, compensatory education and training programs should help mediate the influence of family background and thus promote equality of opportunity.

Yet these programs are unlikely to eliminate the transmission of economic inequality from one generation to another. Apart from its indirect influence on adult status, family background also exerts a direct influence. Although a number of specific mechanisms might explain this effect, one factor is undoubtedly the direct transfer of material wealth from parents to their offspring. And while government tax laws do reduce their amount, inter-generational transfers remain an important source of wealth inequality in our country (Osman, 1977).

Promoting equality of opportunity constitutes a primary concern of many social policies. Over the years policy makers have enacted a series of laws and regulations to end discrimination based on a person's race, sex, marital status, religion, and nationality. They have also funded education and training programs in order to improve the opportunities of the disadvantaged (Levin, 1977). Just how successful these policies have been in reducing the transmission of social privilege from one generation to another is a matter of debate. A more

fundamental issue is whether our society, or any society, can ever reach a time when everyone, regardless of social origin, has an equal opportunity to achieve life's rewards.

Footnotes

¹Hill and Stafford (1974) and Leibowitz (1977) discuss preschool human capital formation. Wright and Wright (1976), and Skvoretz and Kheoruenromne (1979) discuss the transmission of values from one generation to another.

²Blinder (1973) examines differences between structural and reduced-form estimates of wage equations for white males, black males, and white females.

³Campbell and Henretta (1980) explore more complex, multidimensional models of wealth determination.

⁴For a full description of all the NLS surveys, see Center for Human Resource Research (1980).

⁵The majority of the missing information involved parental wealth from the father's cohort. In subsequent work the number was reduced by substituting information from other survey years (1969, 1971, and 1976) for missing components of wealth in 1966. Estimates using the increased sample were similar to those reported in this paper.

⁶More specifically, net family assets are composed of: market value of home or apartment minus outstanding debt; value of savings; value of U.S. savings bonds; value of stocks, bonds, and mutual funds; market value of farm, business, or other real estate minus outstanding debt; and the amount of any other outstanding debt. Other asset measures (e.g., taking average values of each component for all years--1966, 1969, 1971, 1976--to produce "permanent" assets) were constructed, but they yielded similar estimates. Because of inadequate data, the net value of family automobiles is excluded from assets.

⁷Respondents in the young men's cohorts were asked their parents' total family income in 1966. The zero-order correlation between this figure in the father-son subsample and total family income reported by the fathers was .22. The correlation between parental income reported by the son and net family assets reported by the father was .54.

⁸Frank Mott, of the Center staff, pointed out that a large number of the fathers probably served in the armed forces during World War II and, consequently, started their families rather late. Because of the young men's ages (14-24 years of age in 1966; born from 1942 to 1952), a disproportionate number of them were probably later children.

⁹For a discussion of the influence of family background on socioeconomic status over the life cycle, see Henretta and Campbell (1976, 1978), Featherman and Hauser (1976), and Hauser and Daymont (1977).

¹⁰Assets less than \$1000 were assigned the value of \$1000 in order to remain in the equations. Estimates based only on cases with assets greater than \$1000 produced similar results.

¹¹The small number of cases with nonpositive earnings were dropped from the analysis.

¹²For a description of this test and its meaning, see Parnes, Miljus, and Spitz (1970: 120-121).

¹³One problem in using KWW is that the test was administered in 1966, the first year of interviews for the young men, by which time some of the young men were no longer in school. Consequently, the structural relationship specified in equations (2) and (3), where schooling is a function of prior ability and family background is incorrect. But since the primary focus of the present analysis is to study the relationship between family background and economic status (i.e., earnings and wealth), this problem simply introduces a bias in the coefficients of the intervening variables. Griliches (1976) investigates this problem in depth. He finds that KWW is a satisfactory measure of early ability (IQ) in earnings equations even after allowing for the endogeneity of schooling and ability. IQ was not used in the present study because data were missing for a large proportion (approximately 20 percent) of sample cases.

¹⁴Although similar components were used to construct fathers' and sons' assets (see footnote 6), a more detailed series of questions were used to ascertain fathers' assets. In addition, fathers' assets included the amount of personal loans and mortgages held; sons' assets did not.

¹⁵This specification is borrowed from Griliches (1976).

¹⁶Originally, two other independent variables were included in the model--years of military experience and a dummy variable for current residence in an SMSA. But after initial estimates they proved insignificant and were dropped from subsequent estimates.

¹⁷Originally, a variable for mother's education was also included. But the coefficient was insignificant and the variable was dropped from subsequent estimates.

¹⁸The variance explained in reduced-form estimates for various background characteristics from other data sources range from .009 to .191. See Corcoran, Jencks, and Olneck (1976).

¹⁹Of course the data in these studies vary greatly. Only Brittain uses a measure of parental wealth; Parsons uses father's wage rate, Bowles, and Hauser and Daymont use family income.

²⁰Among older white men, Henretta and Campbell (1978) found

that family background (measured by father's education and occupational status) influenced wealth (net worth) indirectly, through its effect on educational attainment. But they did not have a measure of parental wealth which, the present analysis shows, has a direct effect after controlling for ability and schooling.

²¹Jackman and Jackman (1980) found that not only are blacks less likely than whites to own their own home, the value of homes owned by blacks is lower than the value of homes owned by whites. The NLS data used in the present study confirm these observations.

²²This idea was first pointed out to me by Tom Daymont. See Hauser and Daymont (1977: 196).

²³To test this latter proposition equation 3.4 in Table 4 was estimated for single, white males. The coefficient for parental wealth (LNMASS) was .388 compared to .191 for both married and single males. Thus it does not appear that the influence of parental wealth is brought about by sons of wealthy parents marrying daughters of other wealthy parents, although this may influence future inheritance.

²⁴Actually, this variable represents the amount of money received in the 12 month period preceding most survey years (1966-1971, 1976). Except in 1976, this information was ascertained only for respondents who were heads of their own households. Thus the variable undoubtedly understates the total amount of money received over the period.

²⁵Osman (1977) discusses three means of inter-generational wealth transfers--trust funds, inter-vivos gifts, and inheritance.

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The Center for Human Resource Research is a policy-oriented research unit based in the College of Administrative Science of The Ohio State University. Established in 1965, the Center is concerned with a wide range of contemporary problems associated with human resource development, conservation and utilization. The personnel include approximately twenty senior staff members drawn from the disciplines of economics, education, health sciences, industrial relations, management science, psychology, public administration, social work and sociology. This multidisciplinary team is supported by approximately 50 graduate research associates, full-time research assistants, computer programmers and other personnel.

The Center has acquired pre-eminence in the fields of labor market research and manpower planning. The National Longitudinal Surveys of Labor Force Behavior have been the responsibility of the Center since 1965 under continuing support from the United States Department of Labor. Staff have been called upon for human resource planning assistance throughout the world with major studies conducted in Bolivia, Ecuador and Venezuela, and recently the National Science Foundation requested a review of the state of the art in human resource planning. Senior personnel are also engaged in several other areas of research including collective bargaining and labor relations, evaluation and monitoring of the operation of government employment and training programs and the projection of health education and facility needs.

The Center for Human Resource Research has received over one million dollars annually from government agencies and private foundations to support its research in recent years. Providing support have been the U.S. Departments of Labor, State, and Health, Education and Welfare; Ohio's Health and Education Departments and Bureau of Employment Services; the Ohio cities of Columbus and Springfield; the Ohio AFL-CIO; and the George Gund Foundation. The breadth of research interests may be seen by examining a few of the present projects.

The largest of the current projects is the National Longitudinal Surveys of Labor Force Behavior. This project involves repeated interviews over a fifteen year period with four groups of the United State population; older men, middle-aged women, and young men and women. The data are collected for 20,000 individuals by the U.S. Bureau of the Census, and the Center is responsible for data analysis. To date dozens of research monographs and special reports have been prepared by the staff. Responsibilities also include the preparation and distribution of data tapes for public use. Beginning in 1979, an additional cohort of 12,000 young men and women between the ages of 14 and 21 will be studied on an annual basis for the following five years. Again the Center will provide analysis and public use tapes for this cohort.

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A third area of research in which the Center has been active is manpower planning both in the U.S. and in developing countries. A current project for the Ohio Advisory Council for Vocational Education seeks to identify and inventory the highly fragmented institutions and agencies responsible for supplying vocational and technical training in Ohio. These data will subsequently be integrated into a comprehensive model for forecasting the State's supply of vocational and technical skills.

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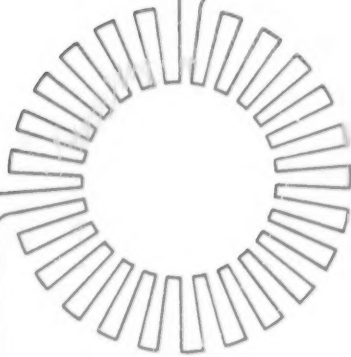
Senior staff also serve as consultants to many boards and commissions at the national and state level. Recent papers have been written for the Joint Economic Committee of Congress, The National Commission for Employment and Unemployment Statistics, The National Commission for Manpower Policy, The White House Conference on the Family, The Ohio Board of Regents, The Ohio Governor's Task Force on Health, and the Ohio Governor's Task Force on Welfare.

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Center for Human Resource Research

Career Paths and Career Origins:
The Effect of First Job Industry on
the Attainments of Mature Men

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Abstract

The fundamental contention of this paper is that the industrial environment encompassing a worker's career origins has pervasive and irrevocable effects on his subsequent career developments. We argue that this is so even for workers who transfer to a new industrial setting. In developing this argument we explore the linkages that exist between industries, internal labor markets and career paths.

Empirically, we demonstrate that industry of first job is a significant and strong predictor of earnings and occupational SEI for workers late in their careers. This finding holds despite controls for a number of relevant human capital and other variables, including current job industry, and with various alternate universe restrictions.

The final sections of this paper explore the ways in which industries impact on careers. We find that these processes are complex and not well specified by current models of industrial organization. In conclusion, we argue that these results support the relevance of institutional environments in shaping career developments, and that industry is an appropriate level of aggregation at which these processes can be studied.

Career Paths and Career Origins: The Effect of First Job on the Attainments of Mature Men

I. INTRODUCTION

Recent work in stratification research has come increasingly to recognize the importance of institutional factors in determining the socioeconomic achievements of workers. Evidence has demonstrated that firm and industrial organizational attributes are significant determinants of earnings net of the individual worker's own human capital and areal and occupational controls. All these structural effects, however, are hypothesized to operate contemporaneously with a worker's employment tenure. Specifically, the labor force attainments of all workers in an institution are thought to be affected by its organizational features;¹ once a worker crosses an institutional boundary the situational attributes of his new work environment come into play, and those of his former presumably lose relevance.

The contention of this paper is that institutional structures also have a more fundamental and pervasive effect than that suggested by this scenario. We argue that the institutional, and in particular the industrial environment encompassing a worker's career origins shape his opportunity structures and thereby constrain and channel his subsequent career developments. Accordingly, these formative influences will continue to have an impact on socioeconomic attainments even for those who have transferred to a new industrial setting.

The theoretical backdrop for these ideas derives from the re-emergent literature on career-line analysis (see, for example, Spilerman, 1977). In this body of work, job transitions are viewed as components of coherent career lines. Emphasis is drawn to the linkages which exist between jobs

and the institutional features of the labor market which cause "typical" career progressions to emerge. Accordingly, it makes sense to view a worker's early work history as constraining or limiting his or her subsequent career development; internal labor market features which help determine the character of early job progressions should have effects on subsequent socioeconomic attainments which are irrevocable.

Focussing on the linkages between jobs in this fashion represents a departure from the prevailing paradigms for studying labor force attainment. Indeed, with the exception of a few early monographs (e.g., Form and Miller, 1949; Lipset and Bendix, 1952a; Lipset and Bendix, 1952b; Palmer, 1954), scant attention has been devoted in the empirical literature to analyses of job shift behavior. The dominant frameworks within which occupational and earnings attainments have been most recently studied are the status attainment model in sociology (see, for example, Blau and Duncan, 1967; Sewel et al., 1970; Alexander et al., 1975) and the human capital model in economics (e.g., Mincer, 1974; Becker, 1975). In both of these the emphasis is on identifying the role of the individual's ascribed or achieved attributes (including educational attainment, aspirations, and family background characteristics, among others) on eventual socioeconomic achievements. In recent years, this work has been complemented by analyses which focus on the role of various attributes of the work setting, including establishment size (Stolzenberg, 1978) and industrial organization (Beck, et al., 1978; Bibb and Form, 1977; D'Amico, 1980; Daymont, 1979). Still, with few exceptions (e.g., Sorenson, 1975), sociologists' inattention to the complex patterning of labor force attainment means that the ways in which labor

market structures constrain careers go unanalyzed. One premise of this paper is that career-line concepts can be usefully integrated into and can enrich models of socioeconomic attainment. One of our objectives is to demonstrate that such an integration is both feasible and worthwhile. Our effort to show the importance of career origins for subsequent socioeconomic success should be viewed in this light.

The outline of this paper is as follows. First, given the continuity which careers are presumed to exhibit, we argue that institutional features of the labor market which determine the character of career origins should have a pervasive impact on socioeconomic attainments even years later. That characteristic of career origins most relevant for these outcomes may be the extent to which early job progressions are "orderly" or hierarchical. We argue that this, in turn, largely covaries with industry of employment. In making this contention, we explore the linkages which exist between industries, career paths and internal labor markets. The first empirical section of this paper, then, attempts to demonstrate the importance of industry of first job for the occupational placement and earnings attainment of workers late in their careers. We show that these effects are significant and strong and operate net of the individuals' own attributes and net of their current industry of employment. Moreover, this finding proves to be remarkably robust and persists despite various universe restrictions. We next explore the linkages between first job and current job industry effects. We find that advantageous first job industries exert their impact on socioeconomic attainments at least partially by channeling workers into high-paying current job industries. Moreover, after noting a remarkable lack

of congruence between the first job and current job industry effects for specific industries, we conclude that the ways in which institutional structures impact on careers are complex and not well specified by current formulations of the operation of internal labor markets. The final empirical section tentatively demonstrates that industry growth rates are partly responsible for first-job industry effects. In discussing the preceding results, we conclude that career-line concepts can be usefully integrated into models of labor market behavior and that industry is one appropriate level of aggregation at which these processes can be analyzed.

II. CAREER PATHS, INTERNAL LABOR MARKETS AND INDUSTRIES

A. The Career-line Concept

The fundamental notion underlying career line analysis is that the labor market is not an open, homogeneous pool within which workers are free to move. Instead, a variety of factors operate to structure workers' career developments. These include the need for progressive development of job skills (Doeringer and Piore, 1971); the pervasiveness of occupation-specific training (Stolzenberg, 1975; Doeringer and Piore, 1971; Becker, 1975); union (Spilerman, 1977) or administrative rules regarding promotion or transfer, including seniority qualifications (Doeringer and Piore, 1979; Spilerman, 1977; Doeringer and Piore, 1971; Edwards, 1975). The net result is the existence of a finite number of regularly occurring, temporally ordered job progressions arising from each "port of entry," or entry-level position. These job progressions are variously called "career paths" or "career lines," and analysis of their characteristics and consequences constitutes principal tasks of career-line analysis.

B. Careers in Institutions

The relevance of career-line analysis for understanding the labor force achievements of workers derives from the considerable variation that exists in career attributes. Careers may vary with respect to manner of recruitment, number and position of entry portals, age-earnings profiles, and so on (Spilerman, 1977). For our purposes, a useful distinction can be drawn between what Spilerman calls "orderly" and "chaotic" career paths. We define an orderly career line as one whose constituent job progressions entail progressively greater levels of related job responsibilities and usually also remuneration--what Slocum (1966) and Hall (1975) mean by "careers." An instance of this would be exemplified by the work history of an employee who is steadily promoted through the ranks of a single firm's employment hierarchy. A chaotic career path, by contrast, lacks this directionality. In the extreme case, it would be represented by a worker's meandering through a sequence of job titles which bear no obvious interrelationship other than their empirical coincidence. To be sure, both orderly and chaotic career paths as defined here represent ideal types; any worker's actual career is likely to fall somewhere between these two poles. But this continuum bears obvious relevance for status attainment processes.

In understanding the development of orderly vs. chaotic careers, one must focus on the institutional contexts within which careers develop. Institutions impart character to careers by virtue of their implications for opportunity structures (Spilerman, 1977), and because rules regarding promotions and transfers between jobs are often administratively determined (Doeringer and Piore, 1971). Following Doeringer and Piore, we use the

term "internal labor markets" to describe these features of intra-institutional job structures.

As with career paths, internal labor markets consist of job progressions emanating from ports of entry, and vary with respect to their major characteristics, including the degree to which their constituent job sequences are hierarchically ordered. But despite their similarity, career paths and internal labor markets differ in one fundamental sense. Internal labor markets are properties of institutions; by contrast, career paths describe typical job progressions experienced by workers and usually cross institutional boundaries. They are therefore individual-level phenomena. This distinction between internal labor markets and career paths is often blurred.² But making a clear conceptual differentiation between them enables research to be explicitly directed on their interplay. This, in fact, may constitute the grounds upon which the translation of institutional processes to individuals' attainments can best be explored.

The interrelationship of internal labor markets and career paths constitutes a critical component of the argument being developed in this paper. Doeringer and Piore (1971) have already noted the role internal labor markets can play in structuring individuals' attainments. But their treatment generally discusses the issue as if workers' entire careers took place within a single internal labor market. Of course, they do note the linkages that exist between internal labor markets. But the implications for long-term career progressions are never made very clear. We believe this issue can best be investigated by the juxtaposition of internal labor market and career-line concepts.

The fundamental premise of this argument can be stated simply: careers develop within and have their major characteristics shaped by the usually multiple internal labor markets of which they are a part. Where career paths cross institutional boundaries, the several impinging internal labor markets all exert their separate impacts. Thus, given the linkages that exist between jobs in a career line, disadvantages incurred by starting one's career in an unstructured internal labor market cannot be overcome by simply transferring to a new institutional setting. If the port of exit from one's institution of career origin does not reflect a progressive development of job skills and responsibilities or levels of remuneration, the port of entry for one's new internal labor market will likely be located near the bottom of its job hierarchy. These considerations lead Spilerman to conclude: "The notion of a career-line is intimately associated with the view that the labor market is patterned--that determinable job sequences exist, common to the experiences of many workers, which can be understood in terms of the institutional features of this market" (Spilerman, 1977: 552).

The relevance of the institution surrounding career origin as a major factor shaping subsequent socioeconomic opportunities should now be clear. Thus, two workers may begin their careers with identical qualifications and equivalent skills; their first jobs may even be quite comparable in terms of earnings and job duties and responsibilities. They may even end their careers in similar institutional environments. But if one of them began his career in an internal labor market with a port of entry connected to a rigidly structured and hierarchically ordered job ladder, he should stand at considerable advantage insofar as his probable subsequent socioeconomic

attainments are concerned. We are suggesting, then, that it is not so much characteristics of first jobs that are important for careers, as it is the internal labor market structure within which that first job is embedded. Given the oft-noted covariance between major features of internal labor markets and industry, this immediately suggests the role the latter might play in shaping careers.

C. Internal Labor Markets and Industries

An internal labor market is the institutional expression of constraints and planning considerations confronting organizations. Its major features are determined by the economic and social contexts within which firms operate. These include: level of technology (Edwards, 1975; Doeringer, 1967); product market characteristics, including degree of market power and profitability (Averitt, 1968); level of bureaucratization (Edwards, 1975); and custom (Doeringer, 1967). All these factors influence the desirability and feasibility to firms in using rigidly organized internal labor markets as a means for the progressive development of employee job skills (Doeringer and Piore, 1971) and as a mechanism of labor control (Edwards, 1975; D'Amico, 1978). All these factors, too, tend to covary with industry, a fact recognized and made use of by numerous researchers developing industrial segmentation schemes (e.g., Hodson, 1979; Beck, et al., 1978; Oster, 1979; D'Amico, 1980; Tolbert, et al., 1980; Bluestone, 1973). We acknowledge that multiple internal labor markets may exist within a single firm as well as within a single industry. Nonetheless, we argue that internal labor market types tend to be homogeneous within industries. On this score, Spilerman (1977;

579) writes: "Firms in the same industry are likely to have comparable technologies and organization forms and would be subject to identical fluctuations in demand for their products. For this reason much of the interfirm variation in career-line structures is likely to derive from industry differences." He concludes: "Career line features have a basis in industry organization...the industry entered by a young worker (thus) carries considerable consequence for the evolution of his earnings and status."

There is another aspect of industrial organization which impinges on the development of careers. Specifically, institutions differ in the extent and kinds of training opportunities they provide their workers. In this regard, Becker (1975) emphasizes the importance of distinguishing between general and specific skill development. The former refers to skills which enhance a worker's productivity in any number of institutional environments, while the latter refers to skills which are useful in a single firm only. Workers who procure general skills will find their future earnings potential incremented regardless of whether they stay with the same employer or switch firms. In either case, they should receive the full return on their acquired investment, since they bore the full costs of the training (Becker, 1975). By contrast, workers who acquire specific skills will not find their earnings enhanced by a corresponding amount. If they remain with the same employer, they receive only partial returns, since their employer is presumed to have borne some of the training costs; if they switch firms, they can expect no return on their investment, since their marginal productivity in their new employment situation is not enhanced by their previous skill acquisition.

Thus, workers should find their wages late in their careers affected by the particular mix of general and specific job skills which they previously acquired. Since the amount and kind of on-the-job training opportunities vary with industrial setting (Field, 1980), this is another reason why industry of career origins can be expected to impinge upon subsequent career success. Accordingly, after a description of the data, we will investigate the extent to which a worker's industry of first job is an important determinant of his subsequent socioeconomic attainments.

III. DATA AND METHODS

The data for this analysis are drawn from the National Longitudinal Surveys of the Labor Force Behavior of Mature Men. The sample consists of a nationally representative cohort of over 5,000 males aged 45-59 in 1966, the year of the first interview. Reinterviews were then attempted at annual or biannual intervals to the present. However, data for our study are drawn primarily from the first wave and our sample includes only those who were employed in that year. Sampling weights were used in all analyses to correct for the original oversampling of blacks. For further details on sampling procedures and questionnaire design, the reader should consult the National Longitudinal Surveys Handbook (1979).

Information on the respondents' career origins was developed from a question on the 1966 survey which asks, "Let's look back now to when you stopped going to school full time. I'd like to know about the first job at which you worked at least a month." Responses were coded into three-digit 1960 occupation and industry Census codes. In order to be sure that

this job represents a real career beginning for all respondents, and not a job in the "trail work stage" (Form and Miller, 1949), we made the further sample restriction that the worker's tenure with this first employer had to have lasted at least one year. On the one hand, by making this restriction we are allowing first job industry to have maximal impact on subsequent career development. At the same time, this limitation deletes from the sample those individuals who are likely to display the most erratic work histories. To the extent that such workers tend to be differentially located across first job industry categories and also have relatively low current earnings and occupational status, we are lessening the association between first job industry and subsequent socioeconomic success (see Ornstein, 1976 for a discussion of problems inherent in identifying first jobs).

Utilization of three-digit Census industry categories for coding first job industry produced too few respondents per category. To improve the stability of industry effects we aggregated three-digit industry codes to the two-digit level. This produced 43 industry categories. Three of these were deleted, because of their heterogeneous nature (e.g., miscellaneous manufacturing). This left 40 first job industry categories, which form the basis of analyses to be described subsequently. These categories, and the number of respondents in each, are reported in Table 1.

The analytic strategy involves relating first job industry to various measures of socioeconomic success. Two outcome variables are employed. The first is the respondent's current job (1966) occupational position, coded in Duncan SEI scores (Duncan, 1961). The second dependent variable used

Table 1 First Job Industry Categories and Number of Respondents per Category^a

Industry	N
Agriculture	1125
Forestry and fisheries	26
Mining	89
Construction	307
Manufacturing	
lumber and wood products	164
furniture and fixtures	21
stone, clay and glass	21
primary metal	52
fabricated metal	49
machinery, excluding electrical	48
electrical machinery and equipment	41
motor vehicles and equipment	22
other transportation equipment	28
professional and photographic equipment	14
food and kindred	136
textile mill products	55
apparel	30
printing and publishing	48
chemicals and allied	38
Railroads and railways	59
Other transportation	81
Communication	25
Other utilities	30

Table 1 (continued)

Industry	N
Wholesale trade	88
Eating and drinking places	57
Other retail trade	460
Banking and other finance	37
Insurance and real estate	39
Business services	18
Repair services	59
Private household	21
Other personal services	79
Entertainment and recreation	69
Medical, except hospitals	25
Hospitals	18
Welfare and religious services	21
Educational services	78
Postal service	9
Federal public administration	57
State and local public administration	18
Total	3662

^aNs are based on the unweighted sample after deleting cases missing on variables included in the SEI equation of Table 3.

is the respondent's reported income from wages and salary for 1966.³

In order to gauge the impact of career origins on workers' later career attainments, the most straightforward operational strategy would be to regress each of the outcome measures described above on suitable controls and a series of 39 dummy variables representing the 40 first job industry categories. One could then look at coefficients on each of the dummy variables to discern whether any net subgroup mean on the dependent variable differed significantly from the omitted category. Unfortunately this approach is not entirely satisfactory for our purposes. At least initially, we are less interested in knowing which of the industry categories are significant predictors of earnings or SEI than in knowing whether the broader concept of first job industry bears any relevance. In this regard, we need a single summary coefficient which adequately indicates the importance of first job industry relative to other variables in the equation. Heise's "sheaf coefficient" (Heise, 1972) provides just such a measure. Calculated by a straightforward formula using the coefficients of the dummy variables as well as their intercorrelations, the sheaf can be interpreted as a partial standardized regression coefficient. While there are several alternate strategies for assessing the conjoint importance of a group of dummy variables (e.g., Morgan, et al., 1962), all produce results quite similar to those generated by Heise's method.

The effects of first job industry are assessed in equations with appropriate controls for possibly confounding variables. Eight basic controls are used throughout. These are: RACE, a dummy variable coded 1 if the respondent was white, 0 otherwise; TENURE, the number of years he has worked

for his current employer; EDUC, years of schooling completed; AGE; AGESQ, age squared; SOUTH and SMSA, dummies for Southern residence and residence in an SMSA, respectively; and FJSEI, the Duncan SEI score of respondent's first job after completing school. Inclusion of this latter variable represents an effort to roughly control the occupational placement of respondent's first job.

A final set of control variables are included in the earnings equations only. These are 39 dummy variables representing the respondent's current job industry measured at the two-digit level. Inclusion of these variables was necessitated because of the well documented effect of (current) industry of employment on earnings (Stolzenberg, 1975; Wachtel and Betsey, 1972; Stafford, 1968), and because of the possible relationship of first job and current job industry placement. The effects of these dummies are also summarized as sheaf coefficients in tables reporting regression results. Means and standard deviations of all variables (except industry dummies) are reported in Table 2.

A final word of explication about the interpretation of the first job industry effect is in order. It should be emphasized that we are not trying to establish the importance of current job industry for socioeconomic attainments; this has been amply documented by others (e.g., Wachtel and Betsey, 1972; Bluestone, et al., 1973). Nor are we trying to establish the existence of industry differences in average starting salaries (see Ornstein, 1976 for a treatment of this issue). Recall that the dependent variables in our analyses are current (1966) attainments measured 25-40 years subsequent to career beginnings; thus, these models are designed to capture

Table 2 Means and Standard Deviations of Variables Used in Subsequent Regression Equations^a

Variable	Symbol	Mean	Standard deviation
Years of education	EDUC	10.07	11.12
Race	RACE	.9048	.2935
Tenure on current job	CJTEN	14.62	11.12
SEI score of first job	FJSEI	24.66	20.50
Age	AGE	51.36	4.28
Age-squared	AGESQ	2656.48	442.73
Residence in South	SOUTH	.3163	.4651
Residence in SMSA	SMSA	.6778	.4674
SEI score of current job	CJSEI	35.95	24.28
Earnings on current job	EARN	7574.61	5124.72

^a Means and standard deviations of all variables except EARN are based on the weighted sample of all cases with nonmissing values on all variables included in Table 3.

the effects of first job industry for men late in their careers. As such, they are presumed to say something about the typical age-earnings profiles that emerge from these points of career origins, net of occupational placement of first job and other appropriate controls. Thus, an industry's current job and first job effects may or may not be of equivalent magnitude or sign. (This issue will be explicitly addressed later in the paper.)

VI. RESULTS

A. The Effects of First Job Industry on Current SES

Results from an estimation of the occupational SEI and earnings equations are presented in Table 3. Both equations support the hypotheses developed in this paper. Table 3 shows that net of other controls, the change between respondents' first job and current job occupational SEI score is significantly determined by first job industry. Moreover, the sheaf coefficient of .1989 ranks FJEF3⁴ as one of the more important variables in the equation.

The results for the earnings equation tell much the same story. Net of the above controls plus current job industry placement, first job industry is a significant and strong determinant of current annual earnings. Moreover, the equations in Table 3 were re-run after omitting from the sample all first job and current job industry categories having less than twenty respondents. This was done to ensure that the values of the sheafs are not being unduly influenced by outliers in a few small industry categories, which might be wildly inflating the values of the affected dummy variable regression coefficients. Results remain essentially unchanged with this universe restriction implemented. These results, then, support

Table 3 Regression Results for CJSEI and EARN Equations

Independent variable	Dependent variable	
	CJSEI	EARN
EDUC	.3558*	.2324*
RACE	.0856*	.0550*
CJTEN	.0391*	.1590*
FJSEI	.2531*	.2307*
AGE	.1116	-.1051
AGESQ	-.1244	.0860
SOUTH	.0778*	-.0276*
SMSA	.0665*	.0868*
FJEF3 ^a	.1989*	.1500*
CJEF3 ^a		.2631*
Adj. R ²	.4687	.3590
N	3662	2704

NOTE: Figures are standardized regression coefficients. Since unstandardized sheaf coefficients have no obvious meaning, metric effects are not reported.

^aSee footnote 4.

*Indicates significance at the .01 level. Significance tests for FJEF and CJEF are based on increment to R² when all other variables are in the equation. The formula used here, and suggested by Heise, is:

$$\frac{N-k-1}{k-h} * \frac{R_k^2 - R_h^2}{1 - R_k^2}$$

where N is number of cases, k is the total number of variables including the dummies for the variable whose effect is being tested, h is the number of dummies for the variable being tested, R_k² is the R² with all variables included and R_k² is the R² without the dummies added.

the notion that the contextual effect of industry of career origins has pervasive effects on socioeconomic attainments even decades later.

B. Results for Movers Only

The strength of these results seems quite impressive. We must be cautious in lending them interpretation, however. One possibility may be that the sheaf coefficients in the earnings equations are artificially inflated due to multicollinearity between the first job and current job industry dummies. In particular, if there is limited mobility out of first job industry categories, then many respondents would be coded identically on the set of first job and current job industry variables. Since it is well known that multi-collinearity can produce inflated estimates of regression coefficients (Mason, et al., 1975), this may partly account for the size of the sheafs reported in Table 3 and may make our interpretation of these results problematic.

To explore this possibility, Table 4 reports results of a reestimation of the earnings equation for "movers" only, i.e., those whose current job and first job two-digit industry codes differ. For comparison, a re-analysis of the current job SEI equation, with this sample restriction is also presented. These results show no substantial degradation in the effects of first job industry in either case.

C. Results for Respondents not in Agriculture

One other possibility that would dictate a tempering of the importance we attach to first job industry would occur if these results were driven by the importance of just one (or a few) first job industry categories.

Table 4 Regression Results for CJSEI and EARN Equations for Movers Only

Independent variable	Dependent variable	
	CJSEI	EARN
EDUC	.4015*	.2506*
RACE	.1068*	.0562*
CJTEN	.0909*	.1888*
FJSEI	.1870*	.1663
AGE	-.2029	-.3822
AGESQ	.1810	.3593
SOUTH	.0731*	-.0485*
SMSA	.0397*	.0876*
FJEF4	.1774*	.1667*
CJEF4		.2479*
R ²	.3772	.3224
N	2669	2084

NOTE: See notes to Table 3.

*Indicates significance at the .01 level. See Note to Table 3.

Agriculture seems the most likely candidate in this regard. Weighted sample estimates show that over 27 percent of the sample's respondents named agriculture as their industry of career origin. Given that only 5 percent of the respondents named this category as their current job industry, this implies a structural shift of employment opportunities away from the primary sector. (This, of course, is a well-documented historical occurrence. Both the 27 percent and 5 percent figures compare favorably with Census estimates for the relevant time periods. (See, for example, Statistical Abstract, 1979). In any case, it is possible that the restricted alternative employment opportunities in rural areas may have resulted in depressed socioeconomic attainments for these individuals. This occurrence alone, then, may largely be accounting for the importance of first job industry displayed in the preceding tables.

Table 5 explores this possibility. This reports results of occupational SEI and earnings equations estimated for respondents who reported neither agriculture nor forestry and fisheries as their first job industry. In each case our conclusions remain unchanged. First job industry remains a significant and strong predictor of both earnings and occupational placement.

D. Direct and Total Effects of First Job Industry

The preceding analysis provide reasonably convincing evidence for the importance of career line concepts for understanding socioeconomic attainments. To further explicate these effects, this section explores the relationship between first job and current job industry.

Table 5 Regression Results for CJSEI and EARN Equations for Respondents not in First Job Industry Agriculture or Forestry

Independent variable	<u>Dependent variable</u>	
	CJSEI	EARN
EDUC	.3857*	.2564*
RACE	.1010*	.0580*
CJTEN	.0913*	.1741*
FJSEI	.2574*	.2182*
AGE	-.2390	-.3641
AGESQ	.2256	.3492
SOUTH	.0730*	-.0139
SMSA	.0580*	.0975*
FJEF5	.1830*	. *
CJEF5		.2360
R ²	.4525	.3030
N	2511	1934

NOTE: See notes to Table 3.

*Denotes significance at the .01 level. See note to Table 3.

If we conceptualize careers as constituting flows through institutional structures, then the pattern of these flows is of paramount interest. We have already established that first job industry is an important determinant of subsequent economic success. But these effects were calculated net of current job industry. To the extent that high-wage (on the current job) first job industries channel workers into high-paying current job industries, we may thereby be understating the total effects of first job industry.

Table 6 evaluates this possibility by reporting the total and direct effects of first job industry on earnings (total effects are defined as the effect of first job industry with current job industry omitted from the regression equation; the direct effect is just the result from Table 3 repeated here). Contrasting the first job industry sheafs for columns 1 and 2, note that the exclusion of current job industry only very modestly increases the magnitude of the first job industry effect. This is surprising since it suggests that the linkage between the earnings potential of first job and current job industry placement are quite weak.

Moreover, the very modest indirect effect of first job industry seems to be entirely caused by the immobility of some workers in industries which have consistently positive (or negative) first job and current job industry effects. As Table 7 shows, the total and direct effects of first job industry are nearly identical when the sample is restricted to "movers" only (i.e., those whose first job industry is different from their current job industry).

E. Relation Between First Job and Current Job Industry Effects

This finding suggests that the ways in which industry impacts on career

Table 6 Direct and Total Effects of First Job Industry for EARN Equations for the Total Sample

Independent variable	Dependent variable	
	EARN	EARN
EDUC	.2456*	.2324*
RACE	.0605*	.0550*
CJTEN	.1639*	.1590*
FJSEI	.2389*	.2307*
AGE	.0484	-.1051
AGESQ	-.0791	.0860
SOUTH	-.0295*	-.0276*
SMSA	.1136*	.0868*
FJEF6	.1686*	.1500*
CJEF6		.2631*
Adj. R ²	.3082	.3590
N	2704	2704

Note: See notes to Table 3.

*Indicates significance at the .01 level. See notes to Table 3.

Table 7 Direct and Total Effects of First Job Industry for EARN Equations for Movers Only

Independent variable	<u>Dependent variable</u>	
	EARN	EARN
EDUC	.2610*	.2506*
RACE	.0614*	.0562*
CJTEN	.2025*	.1888*
FJSEI	.1862*	.1663*
AGE	-.3674	-.3822
AGESQ	.3375	.3593
SOUTH	-.0563*	-.0495*
SMSA	.1061*	.0876*
FJEF7	.1610*	.1667*
CJEF7		.2479*
Adj. R ²	.2766	.3224
N	2669	2669

NOTE: See notes to Table 3.

*Indicates significance at the .01 level. See notes to Table 3.

development is not straightforward. It seems that career streams do not operate to channel workers into consistently (dis)advantageous institutional environments. We had argued that industries with well-developed internal labor markets would "mesh" with each other quite closely, offering workers an uninterrupted and hierarchical career progression. But if this is the case, then the above results imply that industries providing strong job ladders are not also generally high-wage (current job) industries.

This is at odds with previously advanced speculations on the nature of industrial work organization. Dualists, for example, suggest that high-wage industries are also likely to be the ones that have the most highly developed internal labor markets and offer the most in terms of career opportunities (Edwards, 1975; Doeringer and Piore, 1971). This section attempts to examine this contention more directly by examining the correspondence between first job and current job industry effects at the industry level.

Unfortunately, these data are not entirely suited for examining this contention. The first job industry effects capture the impact of an industrial structure that existed four or more decades ago. Thus, if change occurred in the character of individual industries in the ensuing years, the current job industry effects may be measuring the effects of industries that look very different than they once did. To circumvent this difficulty, we would ideally like to be able to assess current job industry effects contemporaneously with the period these respondents' first jobs began.

In the absence of data of this sort, we present Table 8 which records first job and current job subgroup mean industry deviations from the grand

Table 8 First Job and Current Job Industry Adjusted Deviations from Mean Earnings in Dollars (N=2704)

Industry category	First job deviation	Current job deviation
Agriculture	44.82	-3434.08
Forestry and fisheries	-323.42	(1)
Mining	-734.91	1974.92
Construction	327.21	314.68
Manufacturing industries:		
Lumber and wood products	111.52	-347.91
Furniture and fixtures	(1)	-460.33
Stone, clay and glass	(1)	101.35
Primary metal	1096.02	291.02
Fabricated metal	-514.18	364.94
Machinery, excluding electrical	-247.80	1333.23
Electrical machinery and equipment	456.22	1797.22
Motor vehicle and equipment	-158.03	325.96
Other transportation equipment	502.67	546.03
Professional and photo. equipment	(1)	(1)
Food and kindred	-289.44	-199.21
Textile mill products	135.83	2911.81
Apparel	601.32	(1)
Printing and publishing	1001.33	557.99
Chemicals and allied	1607.03	441.81
Railroads and railways	255.78	-544.77
Other transportation	4.36	422.89
Communication	(1)	(1)

Table 8 (continued)

Industry category	First job deviation	Current job deviation
Other utilities	-4.22	389.44
Wholesale trade	-1030.78	807.27
Retail eating and drinking	2281.98	-929.77
Other retail trade	-379.63	-502.33
Banking and other finance	538.98	703.47
Insurance and real estate	-1174.35	3591.99
Business services	(1)	327.54
Repair services	926.57	-2257.15
Private household workers	(1)	(1)
Other personal services	-286.43	-2507.11
Entertainment and recreation	-1091.05	(1)
Medical services, excluding hospitals	(1)	(1)
Hospitals	(1)	-1781.66
Welfare and religious services	(1)	-1771.48
Educational services	422.29	-1324.86
Postal services	(1)	-1031.53
Federal public administration	228.49	928.95
State public administration	(1)	-994.55
Local public administration	(1)	-417.09

NOTE: (1) indicates less than 20 respondents in this category; deviation not shown. See footnote 5 for an explanation of the computation of these figures.

mean, adjusted for all other independent variables included in Table 3.⁵ Note that, of the twenty-six industries for which a comparison between first job and current job industry effects can be made, 13 have effects which are of the same sign. The remaining half, then, show a pattern of either positive first job industry effects and negative current job effects, or vice versa. Indeed, the Pearson correlation of first job and current job industry effects computed across the 40 industries is approximately zero!

It is difficult to know, on the basis of these data, to what degree the noncongruence between first job and current job industry effects represents an historical shift in the character of some industry categories. Undoubtedly, however, this plays a large role. To be sure, Taylorism and other principles of "scientific management" usually associated with the rise of internal labor markets were introduced as early as the late nineteenth century (Stone, 1975). But the scientific-technological revolution of the last several decades, the emergence of free-flow or process production, and the re-direction of growth from the secondary to the tertiary sector has radically transformed the American industrial structure from the early decades of this century. Indeed, Braverman (1974) points out that it is precisely the high-wage industries that have been the most stagnant--and thereby offered the most limited career opportunities--in recent years. These considerations suggest that the implications for subsequent career developments of many specific industry categories for new cohorts of labor force entrants might be very different from that indicated by Table 3 for this sample of older men.

Apart from this, the discrepancy between first job and current job industry effects may also have a substantive interpretation. It suggests that some industries may be generally high paying and yet not be particularly good places in which to start a career. This might be the case, for example, for industries in which unions constitute a strong enough bargaining agent to drive wages up, even while the industry itself provides little in the way of promotional opportunities or transferrable skills. Table 8 suggests that mining may provide an instance of this. By contrast, some generally low-paying industries may provide skills or other opportunities which lead the age-earnings profiles of the career paths emanating from them to have a fairly steep gradient. Educational Services may best exemplify this pattern. In any case, the results of Table 8 suggest that the ways in which industrial structures impact on career patterns and labor market success are not straightforward and cannot simply be characterized as providing "good" or "bad" socioeconomic opportunities for workers.

F. Determinants of First Job Industry Effects

The final empirical section of this paper makes a tentative effort to identify the institutional characteristics of industries which are conducive to the development of subsequently lucrative careers. We have argued that first job industry effects exist because of internal labor market features planning considerations confronting industry. This section attempts to identify what it is about industries that imparts character to internal labor markets.

An empirical exercise of this sort is severely hampered by rather extreme data limitations. Measurement of industry characteristics must be roughly

contemporaneous with when the sample respondents were first entering the labor force. Since they are 45 to 59 years old (in 1966), this necessitates collecting data that reflect the character of industries fifty or more years ago. Unfortunately, industry data for this time period are spotty, inconsistent across industries in variable definition, and in general of questionable reliability. Nonetheless, we have succeeded in coding several items which we believe capture inter-industry variation in labor market structure and promotional opportunities. These are level of bureaucratization and industry growth rate.

Degree of bureaucratization as a characteristic of industry organization may be especially important in this regard. Bureaucratic firms tend to be characterized by a multi-layered, hierarchically ordered array of job positions, usually with codified rules regarding the movement of workers throughout this structure (Edwards, 1975; Stolzenberg, 1978; see Stone, 1975 for an example of this in the steel industry). This is just the situation in which internal labor markets are most likely to be found.

Secondly, industry growth rates are also assumed to be important. An industry which is expanding offers its workers an improved opportunity structure, while workers in industries in decline are more likely to experience a curtailment of promotion possibilities.

A final variable considered is the differential ability of industries to bind workers to their employers. We speculate that orderly career progressions are more likely to be found where employer shifts are less frequent on the grounds that workers who shift employers repeatedly cannot accumulate enough seniority to advance up job hierarchies. This variable is measured

from an item on the NLS survey which asks respondents their tenure on their first job (FJTEN). Level of bureaucratization is operationalized as the ratio of nonsupervisory or production workers to total employees of the industry (NONPROD; actually, lower values on this variable would imply higher levels of bureaucratization). GRWA and GRWB are the proportional industry growth rates for the periods 1920-1930 and 1930-1940, respectively. They are operationalized as: $(\text{total employment at } t_2 - \text{total employment at } t_1) / \text{total employment at } t_1$. Both the growth rate variables as well as NONPROD are coded from items in the Historical Statistics of the United States. It should be reiterated that these data are of questionable reliability due to inter-industry differences in variable definition. Moreover, after deleting cases with missing values only 13 industries remain in the analysis. Accordingly, these results must be considered tentative at best.

As Table 9 shows, each of these explanatory variables is significant, though FJTEN has the opposite sign than predicted. The positive coefficients of the two growth rate variables thus suggest that expanding industries offer improved opportunities for career advancement. Similarly, the inverse relationship between NONPROD and first job industry wage effects suggests that industries with well-developed administrative apparatus (our measure of complexity of the internal labor market structure) facilitate the development of orderly careers. While measurement difficulties preclude our making too much of this, it nonetheless suggests an extension of Stolzenberg's (1978) finding that level of bureaucratization has important implications for labor market processes. Finally, we may speculate that the negative effects of FJTEN represent an effect similar to the previously noted

Table 9 The Determinants of First Job Industry Effects (N=41 industries)

Independent variable	b	B
NONPROD	-3489.26*	-.3765
GRWA	1304.16*	.4063
GRWB	1444.14*	.6174
FJTEN	-261.36*	-.5939
N	13	
R ²	.125	
Constant	4228.52	

*Indicates significance at the .1 level.

(Parnes and Nestel, 1974) advantageous consequences of voluntary mobility for workers' economic achievements. In any case, data limitations preclude our going much beyond these very tentative observations.

V. CONCLUSIONS AND DISCUSSION

We began this paper by arguing that internal labor market structures can be juxtaposed with career-line concepts to provide a useful framework for the analysis of socioeconomic attainments. Indeed, the interplay between features of internal labor markets and career paths may constitute a critical nexus within which the impact of institutional structures on career developments can perhaps most fruitfully be examined.

Adopting this framework, we argued that the internal labor market structure within which respondents' first jobs are embedded should have pervasive and largely irrevocable effects on subsequent career development. Since the planning considerations confronting organizations largely vary by industry designation, it seems appropriate to investigate these issues by observing the relationship between respondents' first job industry and earnings and occupational SEI attainments late in their careers. Investigating this issue, we found significant and strong effects of first job industry on each of these outcome measures. Moreover, these findings proved to be remarkably robust and persisted despite alternate universe restrictions.

But while the importance of first job industry seems reasonably certain, we had only limited success in explaining these findings. Measures of bureaucratization, industry growth rates, and mean first job tenure of employees proved to be relatively poor determinants of the magnitude of

first job industry effects. Moreover, a comparison of first job and current job industry effects for each industry category revealed remarkably little congruence. This suggests that the ways in which institutions impact on careers is complex, and is not adequately conceptualized by a model which posits that institutional environments are either consistently favorable or unfavorable in their impact on careers.

The complexity of institutional effects on career development is underscored in other ways as well. The models which we have estimated must be deemed extremely simplistic, in that they ignore a number of interactions which almost certainly exist. First, whether a given first job industry can be expected to have favorable or unfavorable effects on the subsequent career development of some individual no doubt is contingent to some degree on what his terminal and intervening industries of employment were, as well as the timing of the inter-industry job transitions. The effect of first job employment in educational services, for example, likely depends on whether the worker subsequently found employment in the federal government or in food manufacturing, and whether the job change was made in his early, mid, or late career.

Similarly, first job industry effects also likely vary for workers at different occupational levels. Stolzenberg (1975), for example, already found that the effects of current job industry vary by occupational category, and there is no reason to suppose that the same cannot also be said of first job industry effects. Indeed, Table 10 contrasts first job industry subgroup mean deviations for white and blue collar workers and substantial discrepancies emerge.

Table 10 Adjusted Subgroup Mean Deviations on Earnings for First Job
Industry Categories for White and Blue Collar Workers

Industry	White collar	Adjusted deviation	
		(N=753)	Blue collar (N=1550)
Agriculture	281.50		-173.38
Construction	471.81		159.77
Manufacturing industries			
Machinery, excluding electrical	339.95		-292.35
Food and kindred	-1337.60		540.92
Other transportation	-703.42		197.84
Wholesale trade	-2819.14		-139.42
Other retail trade	-296.45		-36.71

NOTE: Subgroup mean deviations are shown for only those first job industry categories that have more than 20 white collar and 20 blue collar respondents. Ideally, we would have preferred to use a finer occupational breakdown than the white collar/blue collar dichotomy, but sample size limitations preclude this as a possibility.

Despite these limitations--indeed, perhaps because of them--the effects we observe are all the more dramatic. We have established the important role that institutions play in shaping careers, even decades after workers have moved on to a new internal labor market setting. Just as importantly, however, we have hopefully helped establish the integrity of using industry data in labor market analyses. Several researchers have recently suggested that the firm is really the level at which institutional effects on labor market outcomes should be studied, and that industry-level analyses are either inappropriate or second-best (e.g., Baron and Bielby, 1980). As general statements, these assertions seem unwarranted. If sociological theory proceeds by abstraction, then production and product market characteristics influencing labor market organization can be thought of as operating at the industry-level. Moreover, the existence of wage comparisons, notions of equity, pattern bargaining, and union efforts to equalize wages across firms can all be thought of as part of the "centripetal" forces which Ross (1957) identifies as constituting pressure towards equalizing labor market structures across firms. Of course, this is not to suggest that industries are internally homogeneous. Indeed, intra-industry heterogeneity is extensive, is structurally induced and certainly constitutes a legitimate focus of sociological analysis. At the same time, we can proceed with research utilizing industry-level data not because comparable firm-level information is unavailable, but because industry constitutes a meaningful level of aggregation.

Footnotes

¹Though, of course, workers in different occupational positions may be differentially affected (Stolzenberg, 1975).

²Some researchers (e.g., Althausen and Kalleberg;) diverge from Doeringer and Piore's usage and define internal labor markets very much the way we have defined career paths in this paper. One might wonder in such cases exactly what an internal labor market is internal to.

³This variable was picked up from the 1967 interview schedule and represents income from wages and salary for the preceding calendar year.

⁴First job and current job industry sheaf coefficients are denoted as FJEF and CJEF, respectively. A numerical suffix is appended to these variable names corresponding to the table to which they apply.

⁵In particular, first job industry adjusted deviations were computed by computing a predicted earnings for each first job industry category and subtracting from it the grand mean. Predicted earnings were computed by using the metric coefficients from the earnings equation reported in Table 3 and using mean values for all control variables in the equation, including current job industry. An analogous procedure was used to calculate current job industry adjusted mean deviations.

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The Center for Human Resource Research

The Center for Human Resource Research is a policy-oriented research unit based in the College of Administrative Science of The Ohio State University. Established in 1965, the Center is concerned with a wide range of contemporary problems associated with human resource development, conservation and utilization. The personnel include approximately twenty senior staff members drawn from the disciplines of economics, education, health sciences, industrial relations, management science, psychology, public administration, social work and sociology. This multidisciplinary team is supported by approximately 50 graduate research associates, full-time research assistants, computer programmers and other personnel.

The Center has acquired pre-eminence in the fields of labor market research and manpower planning. The National Longitudinal Surveys of Labor Force Behavior have been the responsibility of the Center since 1965 under continuing support from the United States Department of Labor. Staff have been called upon for human resource planning assistance throughout the world with major studies conducted in Bolivia, Ecuador and Venezuela, and recently the National Science Foundation requested a review of the state of the art in human resource planning. Senior personnel are also engaged in several other areas of research including collective bargaining and labor relations, evaluation and monitoring of the operation of government employment and training programs and the projection of health education and facility needs.

The Center for Human Resource Research has received over one million dollars annually from government agencies and private foundations to support its research in recent years. Providing support have been the U.S. Departments of Labor, State, and Health, Education and Welfare; Ohio's Health and Education Departments and Bureau of Employment Services; the Ohio cities of Columbus and Springfield; the Ohio AFL-CIO; and the George Gund Foundation. The breadth of research interests may be seen by examining a few of the present projects.

The largest of the current projects is the National Longitudinal Surveys of Labor Force Behavior. This project involves repeated interviews over a fifteen year period with four groups of the United State population; older men, middle-aged women, and young men and women. The data are collected for 20,000 individuals by the U.S. Bureau of the Census, and the Center is responsible for data analysis. To date dozens of research monographs and special reports have been prepared by the staff. Responsibilities also include the preparation and distribution of data tapes for public use. Beginning in 1979, an additional cohort of 12,000 young men and women between the ages of 14 and 21 will be studied on an annual basis for the following five years. Again the Center will provide analysis and public use tapes for this cohort.

The Quality of Working Life Project is another ongoing study operated in conjunction with the cities of Springfield and Columbus, in an attempt to improve both the productivity and the meaningfulness of work for public employees in these two municipalities. Center staff serve as third party advisors, as well as researchers, to explore new techniques for attaining management-worker cooperation.

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A third area of research in which the Center has been active is manpower planning both in the U.S. and in developing countries. A current project for the Ohio Advisory Council for Vocational Education seeks to identify and inventory the highly fragmented institutions and agencies responsible for supplying vocational and technical training in Ohio. These data will subsequently be integrated into a comprehensive model for forecasting the State's supply of vocational and technical skills.

Another focus of research is collective bargaining. In a project for the U.S. Department of Labor, staff members are evaluating several current experiments for "expedited grievance procedures," working with unions and management in a variety of industries. The procedural adequacies, safeguards for due process, cost and timing of the new procedure are being weighed against traditional arbitration techniques.

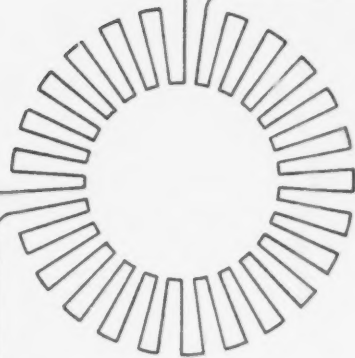
Senior staff also serve as consultants to many boards and commissions at the national and state level. Recent papers have been written for the Joint Economic Committee of Congress, The National Commission for Employment and Unemployment Statistics, The National Commission for Manpower Policy, The White House Conference on the Family, The Ohio Board of Regents, The Ohio Governor's Task Force on Health, and the Ohio Governor's Task Force on Welfare.

The Center maintains a working library of approximately 9,000 titles which includes a wide range of reference works and current periodicals. Also provided are computer facilities linked with those of the University and staffed by approximately a dozen computer programmers. They serve the needs of in-house researchers and users of the National Longitudinal Surveys tapes.

For more information on specific Center activities or for a copy of the Publications List, write: Director, Center for Human Resource Research, 5701 North High Street, Worthington, Ohio 43085.

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Center for Human Resource Research

**The Early Fertility Behavior of Non-College Bound Youth:
Trends and Consequences**

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Administrative Science**

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The Early Fertility Behavior of Non-College
Bound Youth: Trends and Consequences

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During the 1970s both overall fertility and teenage fertility in the United States declined substantially. Between 1970 and 1978, the live birth rate per 1,000 women between the ages of 15 and 19 declined from 57.4 to 43.6 for whites and from 147.7 to 103.7 for blacks.¹

This overall decline in youthful fertility may tempt policy makers to downplay the short and longer term consequences of early childbearing. But in many respects the social and economic situation of young mothers has changed in recent years, in many ways for the worse. Although the percentages and numbers of young women having a child has declined, the composition of the group who are having children has altered over the past decade to include more of those least likely to be able to provide for themselves and their children. As we will show, the young mother in 1979 is much more likely either to be enrolled in school or if no longer enrolled, without a high school degree than her 1968 counterpart. In 1979, almost two thirds of young white mothers either were still enrolled in school (probably high school) or else had dropped out of high school as of the month their first child was born compared with about 50 percent for young white mothers in 1968. The comparable statistics for young black mothers in 1979 and 1968 were about 85 percent and 73 percent respectively.² This report uses two data sets from the National Longitudinal Surveys of Labor Market Experience; the Young Women's cohort who were originally interviewed in 1968, and the Youth Cohort, originally interviewed in 1979.³ These data, which reflect patterns over an eleven-year period, will be used to show how the

social and economic consequences of early childbearing have changed in recent years. Specifically, we will compare the 1968 and 1979 educational, family, welfare and employment situations of young mothers who are between the ages of 14 and 22 and who have not attended college. As will be shown, young mothers in this age range are disproportionately black and/or not college-bound.

The Data Set

For over a decade, the National Longitudinal Survey of Labor Market Experience of Young Women has been following the same individuals in a national cross-section of women who were 14 to 24 years of age in 1968. The surveys include a wealth of information about the family, education and employment experience of these young women as they move from their early teens to adulthood.⁴ The survey initially included about 3,500 white and 1,500 black respondents. Interviews were carried out by the U.S. Bureau of the Census under contract with the U.S. Department of Labor.

In 1979, another longitudinal survey with a new nationally representative youth cohort of over 12,000 young men and women age 14 to 22 was initiated. Interviews with the 1979 cohort will continue at least until 1984; funding comes from the U.S. Department of Labor and interviewing is conducted by the National Opinion Research Center. Interview schedule construction, preparation and distribution of public use tapes and analyses for both the older and new surveys are being carried out by the

Center for Human Resource Research of The Ohio State University with funds supplied by the U.S. Department of Labor.⁵ The 1979 data presented in this study are limited to the female respondents in this more recent survey, which includes about 3,400 white, 1,500 black, and 950 Hispanic young women. All data in this report are weighted up to nationally representative totals and nationally representative black and white population components.

This research will compare selected family and personal characteristics for young women who were 14 to 22 years of age in early 1968 and early 1979. The principal focus will be on the relationship between early childbirth and school leaving and some of its socioeconomic consequences. For this reason, all of the analysis (with the exception of that in the section immediately below) will focus on youth who are no longer in school and have not attended college as of the respective 1968 and 1979 survey dates. The analyses will be limited to youth who have left school at least ten months before the survey dates so that we can examine motherhood probabilities in the periods immediately before and after school leaving.

The Educational Mix of Young Mothers

There has been a dramatic change over the past decade in the propensity of young black and white mothers to remain in school. Table 1 indicates the school enrollment and completion status of young women between the ages of 14 and 22 who had a first birth at least ten months before the 1968 or 1979 interview

date. The table shows their status at several points, ranging from 9 months before the birth of the first child to 9 months after the birth. The dominant pattern to be noted is that young mothers of both races were much more likely to remain in school in 1979 than they were in 1968. Changing social mores as well as more liberal school regulations have made it a much more common occurrence for prospective young mothers to remain students. For example, as of five months before the first child's birth about 20 percent of the white mothers-to-be were enrolled in school in 1968 compared with 42 percent for their 1979 counterparts. The black percentages were 45 percent and 70 percent. These data are consistent with other studies which have shown how dramatically attitudes towards sexual activity have changed during this period.⁶ The liberalization of social mores has probably made it easier for both married and unmarried young women to have children and remain in school if they desire to do so.

Not surprisingly, the percent enrolled continued declining during the months of pregnancy. However, as of the childbirth month, substantial proportions of black and white mothers were still enrolled in school, particularly in 1979. Overall, about one in four white mothers between the age of 14 and 22 and one of every two black mothers was still enrolled in school as of the month of the first birth; the vast majority were enrolled in high school.

After the birth month, the percent of black and white young mothers enrolled in school continues to decline. However, as of nine months after the birth of the child, the percent still

enrolled is substantial, and much higher in 1979 than in 1968. The percent of white young mothers still in school nine months after the birth increased from 5 to 17 percent over the eleven year period, and black mothers showed a much larger increase, from about 15 percent to close to 40 percent. Thus, one positive consequence of recent social change has been a much greater ability of young mothers to continue their education, albeit most of this enrollment increase has been at the high school level. Only a very small percentage of young women below age 22 are parents while enrolled in college.

The greater ability of young women to stay in high school while pregnant and after giving birth has many social implications. On the positive side, it increases the likelihood of high school completion, the learning of vocational skills and the possibility of college attendance. School attendance ultimately translates into a wider variety of career options and a lesser likelihood of a lifetime of poverty.⁷

On the other hand, these findings strongly suggest the need for expanded family planning programs. While recent changes have made it easier for young mothers to stay in school, parallel changes which would cause young women in high school to avoid having a child are less in evidence. There is evidence that teenage women are sexually more active than they were in earlier periods,⁸ and recent literature emphasizes the increasing incidence of very early pregnancies among sexually immature young women.⁹ It is much less clear that the means to prevent or terminate a pregnancy is more readily available to young women in

high school in 1979 than in 1968. To the extent that family planning advice is not readily available to these young women, changing norms regarding the appropriateness of having a child while in high school can only lead to a higher birth rate among those young women who are least able to support young children--with considerable cost to the quality of their current educational and career development and, equally important, to their longer term lifestyle intentions.

Table 1 shows clearly that when one focuses on the problems of new mothers in 1979 one is really considering a group who are different in at least one major way from their predecessors in 1968: they are much more likely to be in school. Policy should be geared toward making family planning services more available to young women in school. Once a young woman in high school has become a mother, educational policy must focus on mechanisms to keep the young woman in school. These should include child care assistance and psychological support from school authority figures, because as this report and many others have documented, both the long and short run implications of not getting the high school degree are overwhelmingly negative.

First Births and School Leaving: Trends Over Time

Table 1 has documented how, increasingly, new young mothers may be found among the in-school population, particularly among those who have not completed high school. In addition, as of a point nine months after the first birth, a majority of out-of-school mothers between the ages of 14 and 22 are high school

dropouts.

A major reason for this changing educational mix of young mothers is that non-college bound youth now have a greater probability of having a child while still in high school. Table 2 indicates the percent of non-college bound young women who have had a first birth by various points before and after leaving high school. The data are presented separately by race and high school completion status and were constructed by comparing retrospective data on the date of school leaving with the date of a respondent's first birth, if she had one. The sample is limited to young women who had left school at least 10 months before the survey date so as to obtain accurate estimates of first birth rates where the pregnancy clearly was initiated while the young woman was still in school.¹⁰

Table 2 shows how the in-school and immediate post-school first birth probabilities have changed over the past decade. The changes have been particularly pronounced for black youth. For white young women who left high school before completing the twelfth year the percent who had a first birth increased from 2.6 to 5.5 percent. In contrast, the percentages for black young women were about 14 percent in 1968 and 29 percent in 1979. Similar racial distinctions may be noted for the high school graduates.

If one compares the childbearing statistics for the different groups at a point nine months after school leaving, significant racial and educational differences in the trend over time may be noted. White high school dropouts and graduates not

attending college are not significantly more likely to have had a child now than was true in the late 1960s--although the childbearing rate is much higher for those who left school before completing high school. For blacks, however, the trend towards increased childbearing in the adolescent years is considerable. By nine months after school leaving, four of every ten black non-college attending high school graduates has had a child, compared with about two of ten for their graduating counterparts in 1968. Almost 60 percent of black high school dropouts have had a child by nine months after school leaving compared with about 45 percent for their dropout counterparts eleven years earlier. Thus, the overall national fertility data showing declines in teenage fertility mask a counter trend among the non-college bound youth, particularly those who are black, in our society. At a point shortly after school leaving, the adult life style options for many of these youth have already been severely constrained.

The rather large increase in the percent of black high school dropouts with a child nine months after leaving school may be due to changing trends in fertility and contraception methods. As already noted, a study highlighted recent increases in the percentages of nonmarried black and white teenagers in metropolitan areas who have had sexual intercourse.¹¹ This article indicated that between 1976 and 1979, the percent of premaritally sexually active teenagers always using contraception went up slightly and that the percent never using contraception declined significantly for both black and white youth. However,

the point was also made that there has been an increasing recent usage of less efficient "contraceptive" methods such as rhythm and withdrawal. The research reported does not permit one to differentiate trends in contraceptive usage by age. However, it is reasonable to conjecture that the younger teenagers were probably those who were not only the least likely to use contraceptives but, in addition, the most likely to use contraceptives inefficiently.¹²

Changes in Characteristics of the Non-College Bound Youth

During the past decade, the long term trend of increasing proportions of youth completing high school and attending college has continued. For example, between 1970 and 1978, the percent of white and black 20 and 21 year old women who were not enrolled in school and had not completed high school declined. For white women the decline was very modest, from 15.1 to 14.5 percent, but for blacks the change was more significant, from about 30 percent to 21 percent.¹³

Because of this decline in the proportion of the youthful population who do not complete high school, we investigated the possibility that the increase in early child bearing of the non-college bound youth might be associated with their being a more "selected out" population compared with all youth their age than had been true in the late 1960s. In particular, because of the significantly higher probability that non-college bound young black women will have a child before completing high school, the possibility of their being from relatively more educationally

disadvantaged backgrounds was also considered.

Table 3 presents information regarding four education-related characteristics for non-college bound youth as well as the same data for all youth between the ages of 14 and 22. More important, the ratios of the characteristics of the white and black women in this study to the characteristics of the overall youth population are also presented. These ratios are more relevant, because they enable us to consider the position of the non-college group relative to all young women. The characteristics include father's mean years of education completed, the percentage of the youths' homes which included reading material such as magazines and newspapers at age 14 and the percentage of respondents who possessed a library card. These characteristics and, in particular, their ratios, have strong face validity as likely meaningful indicators of educational disadvantage, and perhaps as important, post-school employment success.

Reflecting the generally higher level of education attained by more recent cohorts of adults, both the white and black non-college attendees in 1979, but particularly the blacks, come from homes where the father had significantly more education than was true in 1968. In this regard, the young black women have shown the greatest improvement relative to the overall youth population.

With respect to the reading material data, young white dropouts have lost some ground relative to their youthful peers. Black high school dropouts do not appear significantly

worse off than a decade earlier although this is the group who are most likely to have an early birth. In contrast, black high school graduates not going on to college seem to come from more disadvantaged backgrounds, if reading material in the home at age 14 is a reliable gauge of being in the socioeconomic mainstream. In any event, the data do not show any regular or systematic association between increasing fertility tendencies and lower socioeconomic status.

Motherhood, Family Structure, Income Support and Work

We have shown that the young non-college bound woman is more likely now to encounter the problems of motherhood sooner after school leaving or even before school leaving than was true a decade earlier. Unfortunately, for economic and noneconomic reasons, her ability to raise this child may be more difficult in 1979 than in 1968. Both white and black young mothers are less likely to have a husband present in the home in 1979 and thus are forced to fall back to a greater extent on other family support. While we do not have comparable statistics for 1968, very substantial proportions of young mothers in 1979 rely heavily on public transfers. As will be shown, their heavy dependence on welfare is undoubtedly associated with their low involvement in the work force, which in turn reflects their limited job skills, family constraints and generally limited employment opportunities. In addition, these youth are likely to have only minimal knowledge about the workings of the labor market.

The percentage of non-college bound young mothers who either have ever been married or have a husband present in the household has declined dramatically in recent years for all racial and educational groups. As of the 1968 survey date, almost all non-college bound white mothers who had had a child, regardless of whether or not they had completed high school, either were or had been married. As of the 1979 survey date, the ever-married percentages for white dropout and graduate mothers were 86 and 89 percent, respectively. The trend for black young women towards births outside of a marriage was much more dramatic.¹⁴ For black high school dropouts who were mothers the percent who had ever been married declined from 74 percent to 31 percent over the eleven year period, and for black young women with 12 years of school completed the percentages are 68 percent and 43 percent, respectively. The trends reported here are consistent with other studies which show increases in premarital pregnancies among teenagers and a decreasing tendency to legitimize these births.¹⁵

Reflecting at least in part changing social mores regarding the appropriateness of having a child without being married, the above statistics, on the surface, suggest that young mothers in 1979 may well encounter greater economic difficulty in raising their children than had been true a decade earlier. Statistics on the percentages of currently married women with a husband present, for blacks and whites in 1968 and 1979, are presented in Table 4. The percent of white mothers living with a husband showed a modest but significant decline over the decade; the black graduate and dropout group showed a much more substantial

decline in husband presence. In particular, whereas about 49 percent of black young mothers without a high school diploma were living with a husband in 1968, the percent in 1979 had dropped below 20 percent.

Due to the sharp decline in the presence of husbands, other social and economic support systems become even more important. Table 5 presents the household structure of the 1979 young women, with separate distributions indicated by race, high school completion status and parent status. As already noted, most of the white young mothers are living with a husband. Where a husband is not present, they are either living with parents, other relatives or, for a small percentage, with a male partner.

For the black mothers the situation is fundamentally different. A minority are living with a husband. About 35 percent of the high school graduates are living with their parents and an additional 25 percent are living with other relatives. Fully 45 percent of the high school dropouts are living with other relatives (excluding spouses and parents), and 29 percent are living with their parents. The traditional idea that the extended family provides emotional, financial and child care support for young black mothers is apparently quite accurate.

With minor exceptions, both black and white young mothers not living with a spouse are living with other adult relatives, an observation equally true in 1968. Although the data are not presented here, in the vast majority of comparable families in 1968, where a husband was not present, the woman and her child

were living with other adult relatives. The difference between 1968 and 1979 lies in the changes in the tendencies of young couples to marry and to stay married. To the extent that mothers who have been but are no longer married are able to access child support payments from their ex-spouse, the never-married young mothers, a much more common phenomenon in 1979, are distinctly at a disadvantage. Other issues related to the absence or presence of a husband for the wellbeing of the mother and her child are considerably more complex, although the fatherless family in our society is economically and perhaps psychologically at a disadvantage. To the extent that a husband's income is not available and other economic resources are strained or not available, the only other alternatives for many of these young mothers are employment or welfare. Due to the limited job opportunities and alternate income sources available to these young mothers and their families, many of them must depend on public transfer payments (Table 6). It may be noted that the families of about three quarters of the black mothers without a high school diploma receive income from at least one of the three major sources, aid for dependent children, food stamps and supplemental security income. About 45 percent of the black mothers with a high school diploma receive assistance. The white percentages are much lower, consistent with the greater prevalence of a husband in the white families as well as their greater likelihood of access to income from other wealthier family members.¹⁶

The large proportions of black and white high school

dropouts who are mothers receiving public assistance may be associated with their inability to find meaningful employment at a livable wage. Table 7 shows that in 1979, young women with children systematically have lower labor force participation rates than nonmothers, with high school dropouts being particularly disadvantaged in this regard. The black high school dropout who has a child has the lowest level of labor force participation. Only about 8 percent of this group are employed and about 80 percent of those seeking work cannot find it. Between 1968 and 1979, the employment situation has deteriorated more for black young women than for whites. White dropouts have had an increase in labor force participation irrespective of the presence of children. For whites this increased labor force participation reflects both increased employment and increased unemployment. Blacks, however, show a drop in labor force participation by those with children and an increase in unemployment among all groups.

The non-college bound group focused on in this research have only limited education and marginal job skills. The jobs which they can get are usually low-paying with limited opportunities for advancement. Frequently, job-associated child care, transportation, and clothing costs absorb a substantial portion of minimum wage earnings. To the extent that welfare assistance can approach or even exceed the after-tax, after-expenses earnings of these young mothers (when they can find jobs!), it is not surprising that employment and labor force participation levels are low. It is not unlikely that the relaxing of

restrictions to governmental assistance over the past decade may have had some impact on the declines in labor force participation among those young women whose "net" income after expenditures would be the lowest.¹⁷

In addition, the decline in labor force participation for young black mothers without a high school degree reflects a general awareness among this group that jobs are not available; this decline is consistent with the extraordinarily high level of unemployment for black young women, particularly those without a high school diploma. Due to the limited employment opportunities, many of these women with young children are left with no other short-run alternative but public assistance.

Expectations for the Future

In spite of limited educational credentials, employment skills and current employment prospects, the vast majority of these young women--black and white, high school graduate and dropout, mother and nonmother--anticipate that they will be employed when they reach age 35 (see Table 8). This is particularly true for young black women. For all categories of young women, the percent expecting to be working at age 35 has increased substantially since 1968, as it has for all American women.¹⁸ The black dropout, who has the least adequate employment credentials has, at the same time, the greatest prospective employment intentions. The high school dropout with children is in the poorest position with regard to improving her employability over the next few years. Evidence from other

studies indicates that these high school dropouts with children will fare the poorest whether gauged from the perspective of future income or employment,¹⁹ partly because early childbearing is associated with above-average subsequent childbearing²⁰ (although some recent evidence suggests that this may be less true now than in earlier years).²¹ This pattern of continuing childbearing makes it extremely difficult for a woman to gain meaningful employment and training experiences without substantial program intervention; such interventions must of necessity run the gamut from literacy training, guidance regarding how to seek and find employment, occupational training, child care support, family planning assistance, and family support payments.

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²This is supported by data from the NLS. The overall percent of 20 and 21 year old women who have never attended college decreased from about 66 to 55 percent between 1968 and 1979 and the percent who had never attended college and were mothers declined from 27 to 23 percent. Reflecting recent increases in the size of the 20 and 21 year old cohorts, the number of 20 and 21 year old women who have not attended college and have a child actually increased from about 900 thousand to 950 thousand between 1968 and 1979.

³The young women's cohort of the NLS was initiated in 1968. Additional interviews with the 5,159 respondents have been completed each year between 1968 and 1973, 1975, 1977, 1978 and 1980, with interviews planned at least till 1983. As noted in the text, the youth survey interviews are planned to continue on an annual basis at least till 1984. The 1981 NLS Handbook, which describes all of the surveys in detail, is available free of charge from the Ohio State Center for Human Resource Research.

⁴National Longitudinal Survey Handbook, Center for Human Resource Research, The Ohio State University, 1981.

⁵The sample for the 1968 young women's cohort was selected by the U.S. Bureau of the Census and designed to represent the female civilian noninstitutional population 14 to 24 years of age. The 1979 youth cohort sample was selected by the National Opinion Research Center. The young women's sample included an over-representation of blacks and the new youth cohort includes an over-representation of blacks, Hispanics and disadvantaged whites. Appropriate weights were developed by the survey agencies such that the weighted young women's and youth cohorts match the CPS population groups of the same age. For more detail, see the 1980 Handbook, as well as J.R. Shea, et al., Years for Decision, Volume 1, February 1971, Center for Human Resource Research, The Ohio State University, Columbus, Ohio, Appendix B and M.E. Borus, et al., Pathways to the Future: A Longitudinal Study of Young Americans, Center for Human Resource Research, The Ohio State University, January 1980.

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¹⁰Obviously, these estimates should be considered as gross understatements of actual pregnancy levels as they include no adjustment for fetal loss, whether voluntary or involuntary. As such this report surely understates the magnitude of the pregnancy--school leaving phenomenon.

¹¹Ibid.

¹²M. Zelnick and J.F. Kantner. Op. cit.

¹³U.S. Bureau of the Census, Current Population Reports, Series P20, No. 356, Educational Attainment in the United States: March 1979 and 1978, U.S. Government Printing Office, Washington, D.C., 1980. U.S. Bureau of the Census, Current Population Report, Series P20, No. 223, "School Enrollment," October, 1970, U.S. Government Printing Office, Washington, D.C., 1971.

¹⁴These statistics overstate the proportion of birth which probably occurred within a marriage as the survey date could be several years after the child was born and the marital status relates to ever-married status as of the survey date. The universe here continues to be young women who have left school at least ten months preceding the survey date.

¹⁵M. O'Connell and M.J. Moore, "The Legitimacy Status of First Births to U.S. Women Age 15-24, 1939-1978," Family Planning Perspectives 12: 16, 1980.

¹⁶The argument is commonly made that young mothers may avoid marrying in order to maintain access to public welfare funds. These data refute this assumption as regulations in this regard are certainly less stringent in 1979 than in 1968. That is, regulations which encourage the absence of a "man in the household" before some forms of welfare can be obtained are less prevalent now than a decade ago. Thus, on the basis of this criteria alone, one might have anticipated in recent years an increase in the marriage rate among young mothers, not a decline, as has actually occurred.

¹⁷S. Levitan, Programs in Aid of the Poor. Johns Hopkins

University Press, Baltimore, 1976, p. 37.

¹⁸D. Shapiro, "Aspirations to Work at Age 35," Ch. 20 in Pathways to the Future: A Longitudinal Study of Young Americans by M.E. Borus, et al., The Ohio State University, 1980.

¹⁹Mott and Shaw, Op. cit.

²⁰J. Trussell and J. Menken, "Early Childbearing and Subsequent Fertility," Family Planning Perspectives, 10: 208, 1978.

²¹S.R. Millman and G.E. Hendershot, "Early Fertility and Lifetime Fertility," Family Planning Perspectives, 12: 139, 1980.

Table 1

Enrollment Status and Educational Attainment of Young Women
Who had a First Birth at Least Ten Months Before Survey Date, 1968 and 1979

	Months Before or After First Birth										Sample size	
	-9		-5		0		+5		+9			
	1968	1979	1968	1979	1968	1979	1968	1979	1968	1979	1968	1979
White	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	317	413
In School	37.1	56.2	20.1	41.5	9.7	26.6	7.1	21.3	5.1	17.4		
0-11 years	33.9	51.2	17.2	36.5	7.1	21.6	4.9	16.4	3.7	13.5		
12 years & over	3.2	5.0	2.9	5.0	2.6	5.0	2.2	4.9	1.4	3.9		
Out of school	62.9	43.8	79.9	58.5	91.3	73.7	93.0	78.7	94.8	82.7		
0-11 years	21.3	20.5	36.7	30.4	42.1	38.4	43.4	40.9	44.1	42.3		
12 years & over	35.6	23.3	43.2	28.1	49.3	35.1	49.6	37.8	50.7	40.4		
Black	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	219	239
In school	58.5	80.4	44.7	70.0	28.1	55.4	21.8	44.8	14.7	38.8		
0-11 years	56.7	69.3	43.2	59.5	26.6	44.9	20.3	35.8	13.2	30.9		
12 years & over	1.8	11.1	1.5	10.5	1.5	10.5	1.5	9.0	1.5	7.9		
Out of School	41.4	19.6	55.4	30.0	72.0	44.7	78.3	55.1	85.4	61.1		
0-11 years	22.6	11.4	33.6	18.1	41.8	28.8	50.8	35.6	54.6	38.5		
12 years & over	8.8	8.2	21.8	11.9	27.2	15.9	27.5	19.5	30.8	22.6		

SAMPLE: Women 14-22 years of age at survey date with a birth at least 10 months before that date. The overall 1968 sample included about 3,100 white and 1,300 black young women between the ages of 14 and 22. The white sample included a Hispanic subset in proportion to their numbers in the population of that age. The 1979 sample included about 1,500 black young women and 5,000 white respondents. The white sample included a full cross-section of 2,500 whites, a special sample of 1,000 disadvantaged white youth and about 1,500 Hispanics. Both the 1968 and 1979 samples in this study are weighted up to racially and ethnically national representative samples of young women 14 to 22 years of age. All the statistics presented in this paper are based on weighted nationally representative data.

Table 2

Percent with a Child at Various Points Before
and After Dropping Out or Graduating from High School

Months Before or After School Leaving	White Dropout		Black Dropout		White Graduate		Black Graduate	
	1968	1979	1968	1979	1968	1979	1968	1979
-9 months	1.2	1.7	6.3	16.3	1.4	3.0	4.9	20.7
-5 months	1.2	3.0	6.9	19.0	1.6	4.0	9.1	23.8
School leaving month	2.6	5.5	13.9	28.6	1.6	5.1	9.1	27.6
+5 months	8.8	14.0	28.1	46.4	4.6	8.3	15.4	33.1
+9 months	21.3	24.6	44.1	58.3	8.6	10.7	21.1	40.2
Sample size	289	501	207	152	579	691	167	197

Sample: Women who completed 12 or less years of school and had left school ten or more months before survey date.

Selected Characteristics of Non-College Bound Youth Compared With All 14 to 22 Year Olds

Completed less than 12 years of schooling as of survey date and had left school at least 10 months before survey date.

²Completed exactly 12 years of school and had left school at least 10 months before survey date.

Table 4

**Percent of Young Mothers Currently Married
by Race and High School Completion Status, 1968 and 1979**

	High School Completion Status	
	Dropout	Graduate
White		
1968	84.1	86.5
1979	76.3	70.4
Black		
1968	49.1	53.1
1979	18.9	36.3

**SAMPLE: Women who have completed 12 or less years of school,
had left school by at least ten months before survey,
and had a first live birth by survey date.**

Table 5

Household Structure by Race, Parent
and High School Completion Status; 1979

	Black						White			
	H.S. Graduate			H.S. Dropout			H.S. Graduate		H.S. Dropout	
	Total	Mother	Not Mother	Mother	Not Mother	Total	Mother	Not Mother	Mother	Not Mother
Living with Spouse ¹	23.5	36.3	16.0	18.9	18.8	43.5	70.4	23.9	76.3	29.7
Living with Partner ¹ of opposite sex	3.4	0.8	1.1	3.8	16.4	5.6	5.0	10.3	1.5	5.7
Living with Parents ²	42.6	35.3	67.1	28.8	51.1	36.1	10.4	49.1	12.5	48.5
Living with other relatives ³	28.1	24.8	14.5	44.9	13.8	13.5	12.9	13.4	9.7	14.9
Living with other adults ⁴	0.2	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
No adults present	2.1	1.9	1.3	3.6	0.0	1.3	1.2	3.3	0.0	1.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Sample size	349	106	91	116	36	1192	285	216	186	505

¹Other relatives and nonrelatives can also be present²No spouse or partner present³No spouse, partner or parents present⁴No adult relative or partner present

SAMPLE: See Table 2.

Table 6

Percent Receiving Selected Transfer Payments
by Race, Parent and High School Completion Status, 1979

	Black						White					
	H.S. Graduate			H.S. Dropout			H.S. Graduate			H.S. Dropout		
	Total	Mother		Total	Mother		Total	Mother		Total	Mother	
		Mother	Not Mother		Mother	Not Mother		Mother	Not Mother		Mother	Not Mother
A.F.D.C.	21.7	21.2	0.0	4.5	42.6	0.0	9.1	9.1	0.0	16.9	16.9	0.0
Food Stamps	28.4	32.1	5.3	7.3	47.7	5.1	13.3	13.3	0.7	24.3	24.3	3.7
Supplemental Security Income	16.6	17.7	2.7	3.4	29.3	0.0	9.3	9.3	0.5	7.6	7.6	1.5
Any of above	41.4	45.2	6.6	10.4	73.8	4.2	22.6	22.6	1.1	32.4	32.4	4.1
Sample Size	349	108	91	1192	116	36	186	186	505	285	285	216

SAMPLE: See Table 2.

Table 7

Labor Force and Employment Characteristics
by Race, Parent and High School Completion Status; 1968 and 1979

	1968						1979					
	Black			White			Black			White		
	Total	H.S. Dropout	H.S. Graduate	H.S. Dropout	H.S. Graduate	Total	H.S. Dropout	H.S. Graduate	H.S. Dropout	H.S. Graduate	Total	H.S. Graduate
All Women												
Labor Force Participation Rate	58.2	49.1	74.8	37.6	67.8	71.5	42.1	77.1	57.8	80.0		
Percent Employed	50.7	32.5	66.8	25.7	63.4	57.1	11.9	56.3	36.2	71.2		
Unemployment Rate	12.9	33.8	10.7	31.3	6.5	20.1	70.8	26.8	37.4	11.0		
Sample Size	1242	207	167	289	579	1541	152	197	501	691		
Women with Children												
Labor Force Participation Rate	37.5	47.3	67.3	28.1	37.6	51.3	38.2	66.5	47.2	55.3		
Percent Employed	29.9	30.2	58.7	18.2	34.6	32.6	7.5	40.7	26.2	44.7		
Unemployment Rate	20.3	36.1	12.8	34.9	8.0	36.5	81.7	38.8	44.5	19.2		
Sample Size	612	150	84	183	195	693	116	106	285	186		
Women without Children												
Labor Force Participation Rate	75.6	54.2	82.8	53.5	83.4	83.8	56.6	89.8	69.8	88.1		
Percent Employed	68.2	39.1	75.5	38.4	78.3	71.9	28.3	74.8	47.4	79.9		
Unemployment Rate	9.8	27.9	8.8	28.2	6.2	14.1	50.0	16.7	32.1	9.3		
Sample Size	630	57	83	106	384	848	36	91	216	505		

SAMPLE: See Table 2.

Table 8
Percent Expecting to Work at Age 35
by Race, Parent and High School Completion Status; 1968 and 1979

	1968					1979				
	Total	Black		White		Total	Black		White	
		H.S. Dropout	H.S. Graduate	H.S. Dropout	H.S. Graduate		H.S. Dropout	H.S. Graduate	H.S. Dropout	H.S. Graduate
Total Women	29.3	55.1	37.5	29.9	25.5	59.7	77.0	74.1	53.2	55.9
Women with Children	39.7	60.5	49.2	29.9	41.8	68.5	74.1	76.9	58.3	73.6
Women without Children	20.6	36.5	27.1	29.9	16.9	54.5	88.0	70.3	47.5	54.1
Sample size	1085	148	149	259	592	1445	143	192	454	656

SAMPLE: See Table 2.

The Center for Human Resource Research

The Center for Human Resource Research is a policy-oriented multidisciplinary research organization affiliated with the Faculty of Labor and Human Resources in the College of Administrative Science of The Ohio State University. Established in 1965, the Center is concerned with a wide range of contemporary problems associated with human resource development, conservation and use. Its more than thirty senior staff members have been drawn from the disciplines of economics, education, English, health sciences, industrial relations, management science, psychology, public administration, social work and sociology. This multidisciplinary team is supported by approximately seventy graduate research associates, full-time research assistants, computer programmers and other personnel.

The Center has acquired pre-eminence in the fields of labor market research and manpower planning. The National Longitudinal Surveys of Labor Market Experience have been the responsibility of the Center since 1965, with continuing support from the United States Department of Labor. Staff have been called upon for population and human resource planning assistance throughout the world with major studies conducted in Bolivia, Ecuador, and Venezuela. At the request of the National Science Foundation, a review of the state of the art in human resource planning was conducted. In other studies the impact of labor and education policy on labor supply has been assessed and employment statistics collection methods have been evaluated. Senior personnel are also engaged in several other areas of research including collective bargaining and labor relations, evaluation and monitoring of the operation of government employment and training programs, and the projection of health education and facility needs.

The Center for Human Resource Research has received over two million dollars annually from government agencies and private foundations to support its research in recent years. Providing support have been the U.S. Departments of Labor, State, Defense, and Health, Education, and Welfare; Ohio's Health and Education Departments and Bureau of Employment Services; the Ohio cities of Columbus and Springfield; the Ohio AFL-CIO; the George Gund Foundation; the Rockefeller Foundation; and the Ford Foundation. The breadth of research interests may be seen by examining a few of the present projects.

The largest Center project is the National Longitudinal Surveys of Labor Market Experience. This project has involved repeated interviews over a fifteen-year period with four groups of the United States population: older men, middle-aged women, and young men and women. The data are collected for 20,000 individuals by the U.S. Bureau of the Census, and the Center is responsible for data analysis. To date dozens of research monographs and special reports on the NLS have been prepared by the staff. Responsibilities also include the preparation and distribution of data tapes for public use. Since 1979, an additional cohort of 13,000 young men and women between the ages of 14 and 21 has been followed. This cohort includes for the first time those serving in the armed forces at the time of the initial interview. Plans call for interviewing this youth cohort for at least five years. The Center also provides analysis and public use tapes for this cohort; field work is handled by The National Opinion Research Center.

The Quality of Work Life Project, another ongoing study, began in 1975 as an attempt to improve both the productivity and the meaningfulness of work for public employees in the cities of Springfield and Columbus. Today Center staff also serve as third party advisors and researchers exploring new techniques for attainment of management-worker cooperation and worker health in a number of central Ohio private sector industries.

The Center has also been active in manpower planning both in the U.S. and in the developing countries. A project for the Ohio Advisory Council for Vocational Education identified the highly fragmented institutions and agencies responsible for supplying vocational and technical training in Ohio. Subsequent projects for the Ohio Occupational Information Coordinating Committee have followed graduates of these programs. These data and information on occupational distributions of employers collected for the Occupational Employment Statistics Program are being integrated into a comprehensive planning model which will be accessible to trainees and employers and linked to a national network.

Another focus of research is industrial relations and collective bargaining. In a project for the U.S. Department of Labor, staff members are evaluating several current experiments for expedited grievance procedures, working with unions and management in a variety of industries. The procedural adequacies, safeguards for due process, cost and timing of the new procedure are being weighed against traditional arbitration techniques.

Senior staff also serve as consultants to many boards and commissions at the national and state level. Recent papers have been written for the Joint Economic Committee of Congress, The National Commission for Employment and Unemployment Statistics, The National Commission for Employment Policy, The White House Conference on the Family, The Ohio Department of Corrections, The Ohio Board of Regents, The Ohio Governor's Task Force on Health, and the Ohio Governor's Task Force on Welfare.

The Center maintains a working library of approximately 10,000 titles, including a wide range of reference works and current periodicals, as well as an extensive microfilm and microfiche collection. Through their facilities linked to the university computer, the Center's data processing staff provide statistical, technical, and programming support both for in-house researchers and the over 250 users of the National Longitudinal Surveys data tapes. They maintain the NLS tapes, data base, documentation and associated software.

For more information on specific Center activities or for a copy of the Publications List, write: Director, Center for Human Resource Research, 5701 North High Street, Worthington, Ohio 43085.